

THE ROLE OF MANAGEMENT ACCOUNTING INFORMATION SYSTEMS AND GOVERNANCE IN THE INFLUENCE OF INTELLECTUAL CAPITAL STRATEGY ON SMES' BUSINESS PERFORMANCE

Hariyati *, Susi Handayani **, Mazurina Mohd Ali ***

* Faculty of Economics and Business, Universitas Negeri Surabaya, Surabaya, Indonesia

** Corresponding author, Faculty of Economics and Business, Universitas Negeri Surabaya, Surabaya, Indonesia

Contact details: Faculty of Economics and Business, Universitas Negeri Surabaya, 60231 Ketintang Surabaya, East Java, Indonesia

*** Faculty of Accountancy, Universiti Teknologi MARA, Puncak Alam, Selangor, Malaysia



Abstract

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The purpose of this paper is to determine whether management accounting information systems (MAIS) and governance moderate the influence of intellectual capital (IC) on business performance (BP). This research is a quantitative study using partial least squares structural equation modeling (PLS-SEM) for data analysis. A questionnaire survey was conducted to collect primary data from small and medium-sized enterprises (SMEs) located in Surabaya, Indonesia. Distributing questionnaires via Google Form. The results of this study indicate that IC has a positive influence on BP. Further analysis shows that the MAIS strengthens the influence of IC on BP, but governance weakens the influence of IC on BP. The implications of this study are that the SMEs should implement MAIS characteristics to strengthen the influence of IC on SMEs' performance. Although governance is not able to strengthen the impact of IC on SMEs' performance, through proper recording and disclosure of information, it will be able to increase investor confidence in the SMEs. The SMEs also play a significant role in the economic development of a country; therefore, the IC as an intangible asset can play a significant role in achieving good performance in SMEs.

Keywords: Management Accounting Information System, Governance, Intellectual Capital, SME Performance

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1. INTRODUCTION

Small and medium-sized enterprises (SMEs) have long been recognized for their potential to contribute to initiatives to reduce poverty by creating jobs. However, SMEs in Indonesia still do not seem to realize the importance of knowledge-based business by optimizing their intellectual capital (IC). Despite the critical role of SMEs in driving economic growth, enhancing competitiveness, and having resistance to global economic recession, given their limited exposure to the global economy, there remains a lack of awareness about the strategic value of IC. According to Zuliyati et al. (2017), to obtain a competitive edge, it is critical for SMEs to effectively use information and boost their capacity for innovation. Thus, the primary factor influencing future business development is IC management. This is also in order to have quality business performance (BP). Previous research related to IC with resource-based view theory has been conducted by Barney (1991), who states that when the situation is very diverse and there is instability in the company's internal resources, this will have an impact on increasing competitive advantage. Furthermore, Barney et al. (2001) concluded that in this case, because competitive advantage is a rare, unique, and irreplaceable resource, a company cannot apply the sustainable competitive advantage that other companies have. In this context, the strategic management of IC stands out as a critical factor in ensuring SMEs achieve long-term success and resilience.

The BP describes how resources are used to achieve company goals (Hariyati et al., 2022). BP in a company is essentially a measuring tool for investors to assess a company. The company's BP is measured based on the success rate of decisions taken by managers. IC is required with high competence to achieve holistic BP. IC is the aggregation (AGG) of all intangible assets that play an important role for SMEs, where these assets must be used to create value added for the company (Khalique et al., 2018). Several studies about the positive influence of IC on SMEs' performance have been conducted on SMEs in Indonesia and other developing countries (Ullah et al., 2015; Hariyati et al., 2022).

SMEs' performance, according to Hariyati et al. (2019), is influenced by the management accounting information systems (MAIS). The implementation of a fit IC really requires reliable information provided by the MAIS for decision-making and qualified governance. MAIS requires information technology (IT) (Hoang et al., 2024; Qatawneh, 2022; Abernethy & Guthrie, 1994). The MAIS, especially IT, companies that use IT in MAIS have the opportunity to improve planning, coordination, and control functions, which have an impact on improving BP (Lawal et al., 2022). Referring to the research by Hariyati et al. (2022), which states that a reliable MAIS focuses on making the company have a competitive advantage through increasing the company's added value. An accounting system that has a broad scope (BS), integration (INT), AGG, and timelines (TL) is accurate and reliable (Alliyah & Dewi, 2023). This can help communication and collaboration between departments to increase the success of the company. The contingency theory was applied to the MAIS in order to evaluate its influence on SMEs (Alliyah & Dewi, 2023). In SMEs, the profitability that has been

achieved in various activities and even future improvements can be evaluated using MAIS (Ylä-Kujala et al., 2023).

The decline in BP that occurred in Indonesia was influenced by weak corporate governance (CG) in the company. The implementation of CG mechanisms in a business is not as easy as understanding the concept. The emergence of non-compliance, misunderstanding, role conflict, and decision-making functions among company managers are deviations that can arise at any time. The successful implementation of CG not only depends on existing principles and regulations but also on the integrity and quality of human resources (HR) in the company, including SMEs. SME governance improves the performance of SMEs, for example, to ensure access to other sources of capital from financial institutions and investors. This is the main implication of a good SME governance system (Abor & Biekpe, 2007).

This study aims to highlight the significance of IC in enhancing the SMEs' performance in Surabaya, Indonesia. This relationship is further strengthened by the effective implementation of MAIS and good CG practices. Surabaya was chosen as the sample of this study because the city has a gross regional domestic product (GRDP) growth that is higher than that of other regions (Central Statistics Agency [BPS], 2023).

This research makes an important contribution to the existing literature. This research also differs from previous studies in two main ways. First, this study includes SME governance as a moderating variable. This is in accordance with Boyd and Solarino's (2016) and Lastanti and Augustine's (2022) explanation that CG describes how to manage company resources well. This allows CG to moderate the influence of IC on company performance, making it possible. Previous studies had mostly examined governance in large companies. Whereas the governance characteristics of SMEs and large companies are different. Second, this study also includes another moderating variable, that is, SMEs' MAIS. MAIS characteristics include BS, AGG, TL, and INT (Hariyati et al., 2022). Timely information helps managers, including SME managers, to obtain relevant information to make timely decisions and improve performance (Tsai et al., 2020).

This paper is organized as follows. The literature review and hypotheses are discussed in Section 2. The methodology and variable measurement are presented in Section 3. The results are described and analyzed in Section 4. Conclusions, contributions, and limitations of this study are provided in the final Section 5.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Contingency theory

The foundation of the contingency approach in management accounting is the idea that there isn't a single, universally applicable accounting system that works for every entity. Therefore, contingency theory ought to pinpoint certain elements of the accounting system that are connected to specific, predetermined situations and suggest the best fit. Recent research shows that the information provided for effective performance is influenced by other aspects of technology (Otley, 1980). Relating to

technology is one of the weaknesses of SMEs. The flexibility of contingency theory and human nature and circumstances makes this theory suitable for this study. Therefore, contingency theory provides a plausible explanation of the relationship between management accounting practices and SMEs' performance (Okafor & Oji, 2021). For this study, the characteristics of the MAIS examined include information that has the characteristics of BS, INT, TL, and AGG.

2.2. Resources-based view theory

The resources-based view (RBV) theory states that each company has a different position in the market; companies will build their resources according to their position (Wernerfelt, 1984). Firm resources enable the creation and execution of strategies to improve its effectiveness and efficiency (Barney, 1991). According to Madhani (2009), resources will be able providing the optimal results if they meet the following criteria: 1) valuable means that resources must be able to provide strategic value to the company, 2) rare means that resources must be unique in carrying out their business operations, 3) imitability means that resources cannot be imitated by other competitors, and 4) non-substitution means that resources cannot be substituted by other alternative resources. The RBV theory proposes that SMEs devote attention to management accounting practices (financial and non-financial) that best suit their specific needs to improve SMEs' performance. This implies that SMEs should consider and adapt management accounting to improve performance (Okafor & Oji, 2021).

2.3. Business performance

Business performance is the outcome of the work ability demonstrated by the business entity. BP describes the condition of a company from a variety of agreed measures (Anatan, 2007). Related to performance assessment, the balanced scorecard (BSC) is widely used. The BSC was originally created as a comprehensive performance measurement that combines both financial and non-financial measures. The BSC translates mission and strategy into four different perspectives. The first is financial performance, which measures whether the implementation and execution of the company's strategy can contribute to increased net income. Financial aspects are usually related to operating profit, return on capital employed, economic value added, and other measures of the entity's profitability. The second is the customer perspective (CP), which measures the business unit's performance in the target segments (customers and market segments). This perspective's key outcome measures of customer satisfaction, retention, profitability, and acquisition, including market share in target segments. The third perspective is the internal business process (IBP) that enables executives to identify critical internal processes within the entity. These processes enable business units to attract and retain customers in specific market segments and generate excellent profits to meet shareholder expectations. The last perspective is learning and growth, which comes from three main sources: people, systems, and procedures. This perspective creates long-term growth through the development of the entity's infrastructure (Kaplan & Norton, 1996).

2.4. Intellectual capital

Human capital (HC), customer capital (CC), structural capital (SC), social capital (SoC), technological capital (TC), and spiritual capital (SpC) are the primary pillars of IC. In SMEs, according to Khalique et al. (2011), IC is understood as the HC, creating SC, and this SC creates relational capital (Rahman et al., 2022). HC is one of the resources that has the main added value in a company through skills, knowledge, expertise, competence, attitude, and agility (Khalique et al., 2011). According to RBV theory, HR is an entity's most valuable asset (Mention, 2012) and can also help companies in producing the best solutions on the basis of knowledge possessed by all people within the company (Mardiana & Hariyati, 2014). So SMEs depend on their unique HC to grow and survive (Agostini et al., 2017; Cohen & Kaimenakis, 2007). SC contains several elements, namely efficiency, transaction time, procedural innovation, and access to information to make it into knowledge (Bontis, 1998); databases, organizational structures, manual processes, strategies, routines, and everything that can add value to the company (Mardiana & Hariyati, 2014). SC is also used to build systems that allow people to interact, learn, and share knowledge between individuals in the organization (Hariyono & Narsa, 2024).

CC is knowledge-based capital that relates customers to brand value, networks, loyalty, and satisfaction (Bontis, 1998; Khalique et al., 2018). According to Sirojudin and Nazaruddin (2014), CC, or relational capital, is an element of IC that provides value to the company or organization in real terms. SoC plays a crucial role in fostering innovation within a company or organization. It encompasses trust, mutual relationships, interactions, and norms that exist within the social environment, ultimately enhancing the collective ability of the company or organization to engage with and leverage the latest knowledge (McElroy, 2002). Furthermore, the essential components of the IC are the TC, because it is based on IT, research and development (R&D), and protection rights (Khalique et al., 2011), which can support the rapid sharing of knowledge and make it accessible to a wide range of interested parties (Hashim et al., 2015). SpC is an important component of IC that can contribute to the performance of a company or organization (Khalique et al., 2011). SpC is based on religious and ethical values that develop in society (Hashim et al. 2015), and it is important to have in every individual and business entity because it can impact improving performance (Abdullah & Sofian, 2012).

2.5. Management accounting information system

Information is a very important component for the company because it is the basic input for every decision-making process. The relevant, timely, accurate, and complete information is needed to make correct and appropriate decisions. MAIS produces useful information to help workers, managers, and executives make better decisions. From the perspective of RBV theory, the MAIS has a significant role in managing the internal resources of an SME. The implementation of MAIS can assist SME owners in making strategic decisions so that they can ultimately improve their performance (Wuryaningsih, 2024). The dimensions of that

implementation include BS, TL, AGG, and INT. It has been shown to enhance the performance of financial and nonfinancial indicators for SMEs. According to Maelah et al. (2020), the BS dimension of MAIS remains limited. It predominantly emphasizes internal events, historical data, and financial information (Chenhall & Morris, 1986; Maelah et al., 2020). The TL dimension of MAIS describes the frequency and speed of reporting and the provision of information whenever requested. The AGG dimension involved the delivery of summarized data, helping managers to analyze their decisions over time. Lastly, the INT dimension focuses on activity data that informs the overall performance of the company (Chenhall & Morris, 1986).

2.6. Small and medium enterprise corporate governance

Corporate governance is a way of managing the company with the existence of rules. In the context of SMEs, CG plays a critical role and outlines that although there are no agency problems in SMEs, there are global concerns over the implementation of CG in SMEs. The good corporate governance (GCG) in SMEs will benefit when the SME grows into a large business. SMEs can thrive with the support of financial resources, assets, and technology. The implementation of GCG principles will increase the bankability and investability of SMEs (Jaswadi, 2016). However, according to Purwanto and Mustamu (2013), currently, there are still very few studies that examine the application of GCG in SMEs.

The relationship between CG and SME performance warrants further investigation, as policies derived from such studies have the potential to significantly influence economic growth (Afrifa & Tauringana, 2015). GCG describes how to manage company resources properly, thus allowing GCG to moderate the influence of IC on company performance (Lastanti & Augustine, 2022; Boyd & Solarino, 2016). However, empirically, there are still few studies that measure the moderating role of GCG on the influence of IC on SME performance. Therefore, especially in Indonesia, whose governance uses a two-tier system, it is very interesting to examine whether GCG is able to moderate the effect of IC on SME performance.

2.7. Hypotheses development

2.7.1. The influence of intellectual capital on small and medium enterprises' performance

According to Ahmed et al. (2020), the IC affects the achievement of BP significantly. HR in SMEs is an important asset that can provide competitive differentiation in organizational resources that are utilized by improving organizational performance or in the right way (Indira et al., 2023). Besides that, the CC is the main source of organizational revenue (Khalique et al., 2011). All individuals have high levels of intelligence, but organizations with inadequate systems and procedures to track behavior affect IC less than its most extraordinary potential (Hariyono & Narsa, 2024). TC also supports knowledge sharing that can be done quickly and easily accessed by various interested parties (Hashim et al., 2015). Grigoriev et al. (2014) argue

that the existence of TC will support knowledge, which is an intangible resource that can shape the market or company value. The SoC also creates the value of an organization's IC (Khalique et al., 2011). Organizations that have high SoC can take a more competitive advantage (Nahapiet & Ghoshal, 1998). Further, the SpC will have an impact on how an entity is managed, whether it is in accordance with predetermined laws and standards, as well as trust in the nature of individuals in financial and other operational matters, which will have an impact on improving performance (Abdullah & Sofian, 2012). Given the explanations above, the following hypothesis is proposed:

H1: Intellectual capital has a positive influence on small and medium enterprises' performance.

2.7.2. Governance moderates the influence of intellectual capital on small and medium enterprises' performance

Governance is essential for all organizations and should be encouraged for the benefit of all stakeholders. According to Gustikaningsih (2020), CG can moderate the relationship between HC and bank performance. GCG will make a business entity efficient, increase public trust, maintain the company's business continuity, measure company performance management targets, and increase productivity (Rompas et al., 2019). SME governance improves the performance of SMEs, increases investor confidence in SMEs (Abor & Biekpe, 2007; Dube et al., 2011), and increases the bankable and investable status of the SME (Jaswadi, 2016). CG and SME performance are important to study because the resulting policies have implications for the country's economic growth (Afrifa & Tauringana, 2015). CG describes how to manage company resources properly, thus allowing the moderating role of GCG in the influence of IC on BP (Lastanti & Augustine, 2022; Boyd & Solarino, 2016). IC can improve BP, so its performance will increase if the company has GCG. However, empirically, no one has examined the moderating role of GCG in the influence of IC on SME performance. Therefore, the following hypothesis is proposed:

H2: Governance strengthens the influence of intellectual capital on small and medium enterprises' performance.

2.7.3. Management accounting information system moderates the influence of intellectual capital on small and medium enterprises' performance

The strategy to innovate really requires the role of the IC component. Bromwich (1990) argues that the MAIS is very helpful for companies in facing competitive market challenges. MAIS can focus on increasing the value added for the company in a competitive environment. MAIS plays a role in planning, controlling, and decision-making activities. SME operations supported by relevant information through the application of the MAIS will be able to assist business decision-making. By implementing an MAIS, SMEs can better track production costs, sales, and other finances. With timely and accurate information, SMEs can make better decisions, improve operational efficiency, and optimize performance. Some previous studies also explain that MAIS can improve the performance of SMEs

(Maharani & Wuryaningsih, 2024; Wuryaningsih, 2024; Hariyati et al., 2022; Alliyah & Dewi, 2023). These results confirm that MAIS is an integral part of providing information that is very useful for SME owners in decision-making. Thus, this study expected that MAIS can strengthen the influence of IC on SME performance. Therefore, the following hypothesis is proposed:

H3: Management accounting information system strengthens the influence of intellectual capital on small and medium enterprises' performance.

3. RESEARCH METHODOLOGY

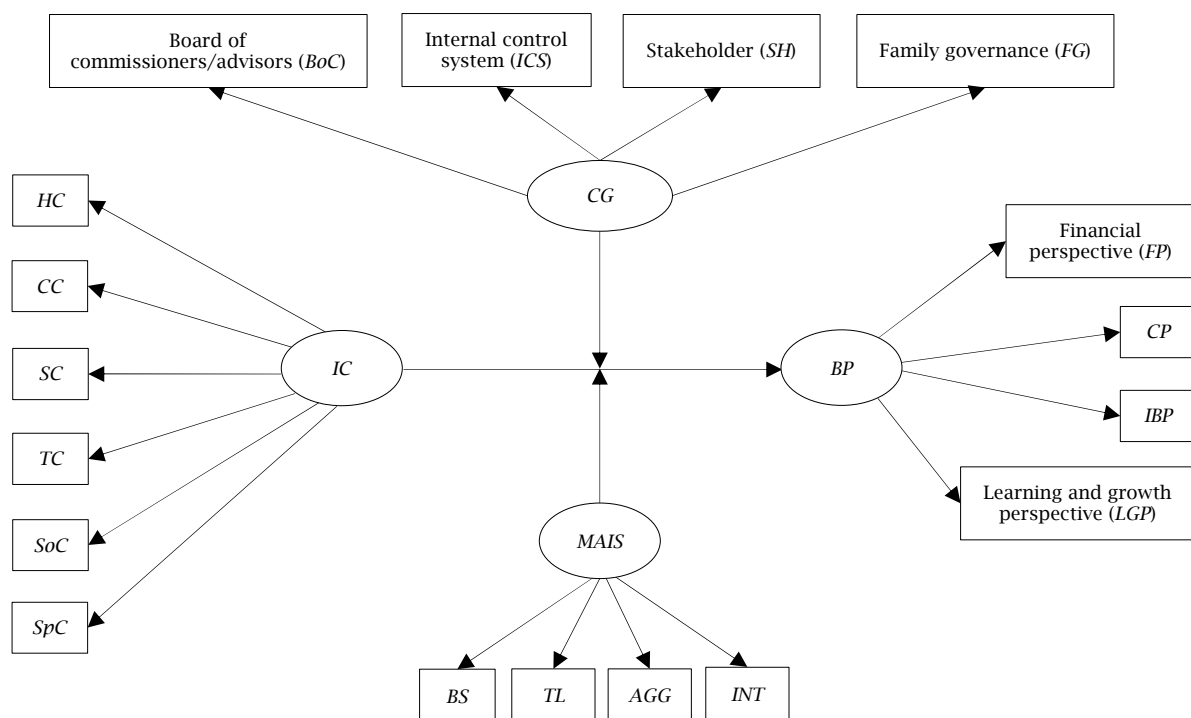
This study uses a quantitative approach to analyze in depth and more comprehensively the moderating role of *MAIS* and *CG* on the influence of *IC* on *BP*. Structural equation modeling (SEM) and regression analysis are commonly used as alternative multivariate statistical analysis techniques. In this study, SEM using partial least squares (PLS) is the most appropriate method to use. To analyze multivariate data, one of the most widely used approaches is PLS-SEM (Memon et al., 2021). This approach is also used to estimate complex cause-and-effect models using latent variables (Cepeda-Carrion et al., 2019). Besides that, this study uses a survey research design to obtain relevant information about the moderating role of *MAIS* and *CG* on the influence of *IC* on *BP*. Therefore, the research model of the study is presented in Figure 1.

3.1. Data collection

A survey was conducted to collect primary data from SMEs located in Surabaya, Indonesia, through the distribution of questionnaires via Google Form. Questionnaires were sent to SMEs that met the following criteria: 1) have been in operation for at least five years to avoid business age bias, and 2) have used any computer programming to generate any business reports. The questionnaires were completed and responded to by the manager or equivalent of the SMEs. The SME respondents were asked to complete the questionnaires truthfully and honestly, and their business identity will remain confidential and only be used for academic research purposes. The age of respondents ranged from 21 years old to 50 years old, with the age range of 31-35 years old filling out the questionnaire the most. Respondents who are male are 63%, and the remaining 37% are female respondents.

Based on the criteria set, the number of questionnaires sent to 155 SMEs that met the criteria, but the SMEs that responded were 134 SMEs, or 86%, which then served as the final sample. Although the number of respondents who filled out the questionnaire was only 134 SMEs, it already represented all regions in Surabaya. In addition, a study needs at least 100 responses for quantitative analysis to have meaningful results (Kent, 2001). The number of responses of 86% is the same as the results of a previous study conducted by Armiani et al. (2021) on SMEs in Indonesia.

Figure 1. Research model



3.2. Variables measurement

In this research model, to measure constructs using questionnaire items that have been used in previous studies, which are rated using a five-point Likert scale (1 = Strongly disagree to 5 = Strongly agree). The *BP* variable is measured using 4 indicators with 16 question items; the *IC* variables use 6 indicators

with 36 question items; the *MAIS* variables use 4 indicators with 18 question items; and the *CG* variables are measured using 4 indicators with 10 question items. In detail, the questionnaire question items are presented in the Appendix (Table A.1); however, the summary for the indicators of the variable is presented in Table 1.

Table 1. Summary of the variables measurement

No.	Variable name	Indicator	Reference source
1	BP	1) FP 2) CP 3) IBP 4) LGP	Bin Ismail (2005), Tovstiga and Tulugurova (2007)
2	IC	1) HC 2) CC 3) SC 4) TC 5) SoC 6) SpC	Tovstiga and Tulugurova (2007), Young et al. (2007), García-Muiña and Pelechano-Barahona (2008), de Castro and Sápez (2008), Bin Ismail (2005)
3	MAIS	1) BS 2) TL 3) AGG 4) INT	Chenhall and Morris (1986)
4	CG	1) BoC 2) ICS 3) SH 4) FG	Jaswadi (2016)

4. RESEARCH RESULTS

4.1. Outer model

4.1.1 Convergent validity test

Convergent validity testing serves to assess the validity of the relationship between each indicator and the corresponding latent variable. This test is carried out by looking at the loading factor value of each construct-measuring indicator. The results of the convergent validity test are shown in Table 2.

Table 2. Loading factor value

Indicator	X	Y	Z1	Z2
CC	0.944			
HC	0.961			
SC	0.958			
TC	0.929			
SoC	0.947			
SpC	0.880			
CP		0.959		
FP		0.956		
IBP		0.972		
LGP		0.973		
AGG			0.993	
BS			0.987	
INT			0.987	
TL			0.985	
BoC				0.960
FG				0.945
SH				0.967
ICS				0.970

The table above shows that all indicators have good convergent validity. This is indicated by a loading factor value of more than 0.70. The next check of convergent validity is by looking at the average variance extracted (AVE) output. The results of the AVE value are presented in Table 3.

Table 3. Average variance extracted value

Variables	AVE
IC	0.878
BP	0.932
MAIS	0.976
CG	0.923

The AVE value of all variables exceeds the value of 0.50. Thus, it can be concluded that all variables in this research have good convergent validity values.

4.1.2. Reliability test

Variables are said to be reliable if they have a Cronbach's alpha and composite reliability value greater than 0.7. The following is the value of Cronbach's alpha and composite reliability for each variable (Table 4).

Table 4. The value of composite reliability and Cronbach's alpha

Variables	Cronbach's alpha	Composite reliability
IC	0.972	0.977
BP	0.976	0.982
MAIS	0.992	0.994
CG	0.972	0.979

The table above shows that all variables in this study have high reliability, as indicated by the Cronbach's alpha value and composite reliability of more than 0.70.

4.2. Inner model test

The inner model test is carried out by looking at the coefficient of determination (R-squared or R^2) and the Q-squared (Q^2) value. The results of R^2 and Q^2 data processing in this study are shown in Table 5.

Table 5. R-squared value

Variables	R^2	Q^2
BP	0.920	0.917

The predictive model of a research model is said to be getting better if the R^2 increases. The table above shows that the R^2 of BP is 92%. It means that the BP has been influenced by IC, MAIS, and CG by 92%, while the remaining 8% is explained by other variables not examined in this study.

The resulting Q^2 value of more than 0 shows evidence that the observed values have been well reconstructed; thus, the model has predictive relevance. The results of this study resulted in a Q^2 value of 0.917, which means that the resulting model has predictive relevance.

Table 6. Effect size value

Variables	BP	Description
XZ1	0.016	Small
XZ2	0.024	Small
X	0.035	Small
Z1	0.897	Great
Z2	0.049	Small

The influence of exogenous latent variables on endogenous latent variables can be measured by the effect size (f^2). In the table above, it can be seen that the variable that has a more dominant influence on *BP* is *MAIS* (*Z1*).

4.3. Hypothesis test

Hypothesis testing is done by looking at the T-statistic obtained through the bootstrapping procedure. The hypothesis test results are as follows in Table 7.

Table 7. Hypotheses results (*BP* as dependent variable)

Variable	Original sample (O)	Standard deviation (STDEV)	T Statistics (O/STDEV)	p values
$XZ1 \rightarrow Y$	0.136	0.066	2.063	0.041
$XZ2 \rightarrow Y$	0.607	0.075	8.079	0.000
$X \rightarrow Y$	0.132	0.037	3.566	0.001
$Z1 \rightarrow Y$	0.143	0.069	2.076	0.040
$Z2 \rightarrow Y$	-0.187	0.076	2.453	0.015

Based on the table above, it can be explained that:

1. The path coefficient value on variable *X* is 0.136, the p-value is $0.041 < 0.05$, and the T-statistic value is $2.063 > 1.960$. It can be concluded that the *IC* has a positive effect on *BP*.

2. The path coefficient value on the *XZ1* variable is 0.143, the p-value is $0.040 < 0.05$, and the T-statistic value is $2.076 > 1.960$. It can be concluded that the *MAIS* strengthens the influence of *IC* (*X*) and *BP* (*Y*).

3. The path coefficient value on the *XZ2* variable is -0.187, where the *XZ2* variable has a negative and significant effect on *BP* (*Y*). It is because the p-value is $0.015 < 0.05$ and the T-statistic value is $2.453 > 1.96$. Thus, it can be concluded that *CG* (*Z2*) weakens the influence of *IC* (*X*) on *BP* (*Y*).

4. DISCUSSION

4.1. The influence of intellectual capital on business performance

The results of the *H1* test show that *IC* has a positive effect on *BP*, so *H1* was accepted. *IC* encompasses *HC*, *SC*, *CC*, *TC*, *SoC*, and *SpC*. The company's competitive advantage is the added value generated from the intellectual model owned by the company or entity. In the era of globalization and IT, demands for innovation in both products and processes, and competitive business competition require companies to change the way they do business. This result is aligned with the resource-based view theory, which posits that companies that can manage assets effectively will gain a competitive advantage and superior performance (Riahi-Belkaoui, 2003). *IC* is an intangible asset that plays a critical role in driving superior *BP* (Meles et al., 2016). As *SMEs* are critical to a country's economic growth, it is imperative to gain practical knowledge of the elements that contribute to their success and development. The results of this study support the research by Ramírez et al. (2021), who explained that *IC* has maintained its influence on the performance of *SMEs*. These insights emphasize the strategic importance of *IC* in fostering sustainable competitive advantages and advancing the economic resilience of *SMEs*, highlighting its value as a cornerstone for organizational success in an increasingly knowledge-driven economy.

4.2. The moderating role of corporate governance on the influence of intellectual capital on business performance

The result of the *H2* test showed that *CG* weakens the effect of *IC* on *BP*, so *H2* was rejected. The current

condition of *SMEs* does not meet the requirements of implementing good governance. The fact shows that the state of *SMEs* that can be called *SME* trademarks, such as the management model of *SMEs*, the majority of which are still one-man shows or single fighters, in *SMEs* themselves have not been known to sort out assets and personal interests with business; most of the capital structure of *SMEs* is still dominated by their own capital, there is a tendency towards a short-term mindset, easily satisfied, and without careful and directed business planning. These findings align with the research of Rompas et al. (2019), albeit in the context of different organizational types. While *IC* is a critical driver of *SME* performance, the absence of robust *CG* practices may hinder its optimal contribution. Addressing governance deficiencies and fostering structured management approaches could unlock the full potential of *IC*, enabling *SMEs* to achieve sustainable growth and resilience in an increasingly competitive business environment.

4.3. The moderating role of management accounting information systems on the influence of intellectual capital on business performance

The result of the *H3* test shows that *MAIS* strengthens the effect of *IC* on *BP*, so *H3* was accepted. The results of this study prove that *MAIS* can moderate the influence of *IC* on *SME* performance. This shows that *SMEs* that have resources in the form of *IC* can play an important role in achieving excellence in *BP* (Meles et al., 2016).

The results of this study are in accordance with the contingency theory that the use of a strategic *MAIS* can maintain relationships within and between business functions to facilitate improved performance (Rowe et al., 2008). It is the multidimensional nature of management accounting systems and the organizational differences in *MAIS* features that make it potentially contribute to better *BP* outcomes. *MAIS* can help companies face challenges in market competition and increase the added value of the company. In the competitive and uncertain environment, *MAIS* can help managers to monitor company performance (Bromwich, 1990). This result also supports the *RBV* theory that *SMEs*, through managing internal resources in the form of *IC* effectively, will be able to improve their performance. Furthermore, their performance will further improve when these *SMEs* also implement *MAIS*.

The application of *MAIS* has an important role in improving the performance of *SMEs*. The characteristics of information in *MAIS* will be effective and efficient if it can support users of the information precisely, accurately, and in a timely manner in decision-making. The *AGG* information

focuses on transferring information to management for high-level decision-making, while integrated information synthesizes department-level data to facilitate cooperation between organizational branches (Novas et al., 2017). The application of MAIS allows SME owners to obtain precise and accurate information, efficient data processing, and performance monitoring to make better decisions (Wuryaningsih, 2024).

5. CONCLUSION

This study examines the influence of IC on BP, moderated by CG and MAIS, focusing on SMEs in Surabaya, Indonesia. The results reveal that IC positively influences BP by creating added value and fostering a competitive advantage for SMEs. However, CG weakens this relationship, indicating the limited effectiveness of governance practices in SMEs. In contrast, the MAIS strengthens the relationship, underscoring its important role in providing reliable and trustworthy information to enhance business decision-making and performance.

This research contributes significantly to the existing literature in two main ways. First, this study incorporates SME governance as a moderating variable, aligning with the explanation of Boyd and Solarino (2016), who emphasize the importance of effective resource management in enhancing company performance. By examining the moderating role of CG, this study highlights the challenges SMEs face in adopting good governance practices and their implications for leveraging IC. Second, this study integrates the MAIS of SMEs as a moderating variable, emphasizing its comprehensive dimensions, which include broad coverage, TL, AGG, and INT. These characteristics are vital for managers,

including those in SMEs, to access relevant and timely information for informed decision-making, ultimately improving business outcomes.

The findings of this study underscore the necessity for SMEs to adopt GCG frameworks to harness the full potential of IC. Policymakers and industry practitioners should prioritize initiatives that strengthen governance structures in SMEs, such as simplified governance models tailored to SME needs. Furthermore, investments in sophisticated MAIS should be encouraged to provide decision-makers with actionable insights, fostering better resource allocation and strategic planning.

This study is not without limitations. The sample is restricted to SMEs located in Surabaya, Indonesia, which may limit the generalizability of the findings to other regions or contexts. In addition, the criteria set in determining the sample are also a limitation of this study; although the sample exceeds 100 respondents, it could be expanded in future studies to increase statistical robustness. Future research could explore similar relationships in different geographic regions or industries, incorporate longitudinal data to examine trends over time, and investigate additional moderating variables, such as organizational culture or external environmental factors, to provide a more comprehensive understanding of the dynamics between IC and BP.

In conclusion, this study provides a foundational framework for understanding the interplay of IC, CG, and MAIS in enhancing SME performance. By addressing its limitations and exploring new avenues, future research can build on these insights to further support the growth and sustainability of SMEs in an increasingly competitive global market.

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APPENDIX

The following is a questionnaire to obtain data about the intellectual capital, SMEs' business performance, management accounting information systems, and governance.

Table A.1. Description of variables (Part 1)

Variable	Question
IC	
X1	Our company has a very competent management team.
X2	In our company, employees can be motivated.
X3	Our employees are experts in carrying out their job duties.
X4	In our company, employees are satisfied with top management.
X5	Our employees generally understand the target market and customer profile.
X6	Our company recognizes the importance of knowledge as an asset.
X7	Our company implements most of the great new ideas.
X8	Our company encourages and supports development activities.
X9	Our company has a good brand name in the market.
X10	Our customers are loyal to our company.
X11	When new businesses come to the market, our customers always choose us.
X12	Collaboration with international companies can improve our performance.
X13	We have sufficient distribution channels to satisfy our customers.
X14	Our company provides facilities for employees to access relevant information.
X15	Our company structure keeps employees close to each other.
X16	Our company provides opportunities to improve employee skills.
X17	Our employees are involved in company decision-making.
X18	In our company, technological knowledge is easy to understand, transfer, and use.
X19	Our company has had a leading role in the market for a long time, based on technological capital.
X20	Our company has a large number of technological concepts that are useful for innovation.
X21	Our company uses high technology to stay competitive.
X22	Our company has a good development infrastructure.
X23	Our company has sufficient budget for technology development.
X24	Our company has skilled and professional employees needed for technological innovation.
X25	Our company has a good system to secure our intellectual property.
X26	Our company has a good system to protect our industrial property.
X27	Our company has a real contribution to the surrounding community.
X28	Our company always pays attention to the environment, or analysis of environmental impact, for the surrounding community.
X29	Our company has good relations with the surrounding community and with customers.
X30	Our company always pays attention to employee welfare.
X31	Our company always provides facilities for the development of soft skills or hard skills for employees.
X32	Our company does not limit employees in carrying out social activities both inside and outside.
X33	Our company upholds the values of tolerance of beliefs and religions.
X34	Our company upholds the values and beliefs of our religions that each person holds.
X35	Our company has employees who obey their respective beliefs or religions.
X36	Our company has employees who uphold the values of morals and honesty.
BP	
Y1	Our business revenue has been increasing continuously for three years.
Y2	Our business can perform budget efficiency well.
Y3	Net profit on our business assets has increased.
Y4	Our company's net profit has increased.
Y5	Because of business performance, customer loyalty levels have increased.
Y6	Our customers are satisfied with our products.
Y7	Our customers believe that our business offers better products and services to them.
Y8	Our customers are satisfied with our services.
Y9	Our consumers or customers continue to increase.
Y10	Our business can continue to produce good products and services.
Y11	Our business practices are focused on the timely delivery of our products and services to customers.
Y12	Our business is very responsive to the development of the times.
Y13	Our business is always able to achieve and maintain superior performance.
Y14	Our business hopes to become a technology leader in the market.
Y15	Our business has the ability to compete globally.
Y16	Our business has good overall performance and success.
MAIS	
Z1.1	The company has sufficient data to facilitate business decision-making.
Z1.2	Company procedures support the innovation process.
Z1.3	Information related to future decisions supports the innovation process.
Z1.4	The company has information about future events (e.g., probability estimates).
Z1.5	The company has non-economic information, for example, customer tastes.
Z1.6	The company has information on external factors of the company, such as economic conditions, population growth, and technological developments.
Z1.7	The company can provide the information needed immediately.
Z1.8	The information provided is information that is in the information system, that is processed properly.
Z1.9	The frequency of reports is given systematically and regularly.
Z1.10	There is no delay in delivering new products or promotions within a period of three years.
Z1.11	There is information on the costs and prices of products offered by the sme unit.
Z1.12	There are cost and profit targets for each activity carried out in all parts of the department.
Z1.13	Information from each part will affect the other parts.
Z1.14	There is information about the impact of decisions on the overall performance of parts in the company.
Z1.15	Information shows the impact of events on different functions.
Z1.16	Information is provided in different parts or functional areas, such as marketing, production, profit centers, and sales centers.
Z1.17	There is information about the impact of events beyond control on business operations in a certain period.
Z1.18	The information format allows for decision-making models such as cash flow analysis, additional cost flow, inventory analysis, and company policy analysis.

Table A.1. Description of variables (Part 2)

<i>Variable</i>	<i>Question</i>
	<i>CG</i>
Z2.1	Advisors are very important in developing SMEs.
Z2.2	Effective operational supervision and monitoring are important foundations for GCG in SMEs.
Z2.3	Employee relations with sme owners or stakeholders are important.
Z2.4	The company has high profits from its operations, which can affect the size of the company.
Z2.5	Management or related parties always control the performance of each individual or employee.
Z2.6	Management or related parties always provide suggestions for the progress of the company.
Z2.7	The existence of family relationships has an impact on good governance in SMEs.
Z2.8	The company is able to overcome conflict-of-interest problems or conflicts of interest for company problems that are influenced by family relationships.
Z2.9	The company always pays attention to suggestions or input from internal parties.
Z2.10	Advisors or company owners have a clear vision for the development of the company's business in the future.