

The impacts of management competence on small and medium-sized enterprises performance: from the balanced scorecard perspective

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Abstract

This study examines the relationships between directors' managerial competence and the performance of small and medium-sized enterprises (SMEs) from the balanced scorecard (BSC) perspective, which consists of four dimensions: finance, customer, internal processes, and learning and growth. A data set of 419 directors of small and medium-sized enterprises (SMEs) was compiled in Thanh Hoa province, Vietnam, a transitional economy where SMEs play an essential role. The data were analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) model. The empirical findings demonstrated a strong positive correlation between directors' management skills and SME performance. Specifically, the results indicate that management skills significantly and positively influence all four dimensions of enterprise performance. In contrast, knowledge and attitudes have a significant influence on only some dimensions. When analyzing the effect of management competence on specific performance outcomes in each BSC aspect, the study revealed that management knowledge has a negligible effect on customer and internal processes. In contrast, attitudes have a negligible impact on financial outcomes. Overall, the research demonstrates that directors' practical skills and knowledge application proficiency are crucial to the operation of SMEs. In contrast, excellent knowledge and a positive attitude should be considered foundational and necessary for the management process. Instead of emphasizing academic training activities, the government should focus on supporting programs that develop and enhance the management skills of SME directors.

Keywords: Management competence, performance, balanced scorecard, SME, Vietnam.

1. Introduction

In recent years, small and medium-sized businesses (SMEs) have emerged as a significant drivers of global economic development (Masoud & Al Khateeb, 2020; Ncube & Chimucheka, 2019). Due to their size and structure, SMEs have demonstrated dynamism, flexibility, and the ability to quickly adapt to a volatile and unpredictable business environment, making them increasingly important in creating new jobs, boosting incomes, and contributing to each country's annual GDP. Nonetheless, they are susceptible to internal (finance, human resource, management capacity strategy, culture) and external (business environment, technology, competitors) factors (Abbass, 2012). Among these factors, the management capacity of SME directors plays a crucial role in laying the foundation for the company's success in achieving its mission and vision, enhancing business performance, and fostering the growth of its people (Manxhari, Velu, & Jashari, 2017). In such an organization, the director's ideology, perspective, and management skills directly impact the strategic orientation of SME development (Bondarenko, Diugowanets, & Kurei, 2021). Scientists have always been interested in management capacity and its impact on organizational performance (Çizel, Anafarta, & Sarvan, 2007; Khoshouei, Oreyzi, & Noori, 2013; Manxhari et al., 2017). Numerous studies have analyzed the impact of various factors on the management competence of small and medium-sized enterprises. Several studies examine the effects of specific factors on SME performance, such as knowledge and operating results. Others examine the impact of a broader range of factors, such as skills and attitude (Abbass, 2012; Roszyk-Kowalska, 2016). Another body of research focuses solely on management knowledge and skills or labor capacity, ignoring the broader study of management competence and its impact on operational outcomes (Khoshouei et al., 2013). Concerning operating results, there are a variety of measurement techniques, including studies that only consider financial factors such as revenue, profit, expenses, and financial performance indicators (Ncube & Chimucheka, 2019). Most of these economic studies are conducted in Asia's developing nations, where the management culture is typically result-oriented but does not always prioritize businesses' long-term, sustainable impacts. In contrast, certain studies evaluate the performance of SMEs solely based on

non-financial factors, such as market share, customer satisfaction, and product and service diversity. Few studies combine financial and non-financial variables (e.g., (Ncube & Chimucheka, 2019; Thao, 2016)).

Along with the development of the global economy, small and medium-sized enterprises (SMEs) in economies in transition, such as Vietnam, are becoming crucial actors in supporting industry, contributing to the growth of domestic supply chains, and integrating into the global supply chain. Therefore, a comprehensive plan is required to develop Vietnamese SMEs with an international focus. As international SMEs do, one method is to measure the performance of businesses according to multidimensional standards on four aspects: finances, customers, internal processes, and learning and development. The BSC is considered the most comprehensive method for measuring SME performance, as it includes four categories of criteria: finance, customer, internal processes, and learning and growth (Nguyen, 2023; Thi Nuong, Quang Hieu, & Thi Loan, 2022). The BSC provides a comprehensive method for measuring both financial and non-financial aspects of SME performance. It serves as a foundation for SMEs to implement modern management techniques, such as KPI and Lean, which assist SMEs in controlling their activities most effectively. By implementing these modern management techniques, SMBs can position themselves for global market integration and growth.

Consequently, the present investigation seeks to answer the following research questions. In addition to other BSC measurement criteria, what management competencies are essential for SME directors to meet current development demands? What is the relationship between each dimension of management capacity and operating performance in small and medium-sized enterprises? What solutions are recommended for enhancing the management capacity of SME administrators in Vietnam and other emerging economies?

The remaining sections of this paper are organized as follows: The second section integrates the numerous theoretical and empirical threads into a theoretical framework. The third section describes the methodology used to conduct the empirical study. The fourth section presents and discusses our empirical findings. This section summarizes the study's key findings and identifies areas for future research.

2. Literature review

2.1. Small and medium-sized enterprises (SMEs) performance

The definition and measurement of business performance can vary (Thao, 2016; Thi Nuong et al., 2022). Duc (2022) considers financial benefits such as revenue, market share, and profit as part of business performance. Hawi, Alkhodary, and Hashem (2015) consider non-financial benefits such as customer satisfaction, retention, entrepreneur satisfaction, business reputation, goodwill, employee satisfaction, and excellent working relationships as part of business performance. Kaplan and Norton (1993) suggest that a balanced set of financial and operational metrics should be employed to establish lucid performance objectives and direct attention to vital business areas. This equitable perspective is required for managers to comprehend what must be measured to influence the behavior of managers and employees.

Measuring performance based solely on financial criteria is insufficient; operational success must include sustainable and equitable development across financial and non-financial criteria (Manxhari et al., 2017; Masoud & Al Khateeb, 2020). To comprehensively evaluate a director's capacity, performance measurement must encompass all operational aspects, including customer satisfaction, internal process management, system development, and employee capacity enhancement (Ncube & Chimucheka, 2019). The BSC method incorporates financial and non-financial aspects. It is an efficient method for measuring performance indicators, with four primary component groups: finance, customers, internal processes, and learning and development (Ploeger-Lyons & Butler, 2022; Thi Nuong et al., 2022). SMBs should adopt modern measurement techniques, such as the Balanced Scorecard (BSC), to obtain a holistic perspective of their management capacity and develop practical solutions. The word is balanced meant to indicate that the performance of personnel is measured on a balanced basis from two perspectives: financial and noncash, short-term and long-term, internal and external, to improve efficiency and effectiveness, and supplemented by additional indicators based on strategic objectives (Manxhari et al., 2017; Ncube & Chimucheka, 2019).

2.2. Management competence

Based on the perspective of [McClelland \(1973\)](#), [Boyatzis \(1982\)](#) defines competence as the fundamental characteristics that enable an individual to achieve excellence. This definition has piqued the interest of academicians worldwide ([Khoshouei et al., 2013](#)) in examining the management capacity of directors. Managerial competence encompasses the knowledge, skills, behaviors, and attitudes necessary to fulfill an administrative role and other organizational responsibilities ([Hellriegel, Jackson, & Slocum, 2005](#)). Competence is associated with the ability to complete specific tasks required of an individual, and managerial competence encompasses the knowledge, skills, behaviors, and attitudes necessary to fulfill an administrative role and other organizational responsibilities. [Boyatzis \(2008\)](#) define management competence as a collection of human characteristics, such as a manager's motivation, personality, skills, social capital, and background knowledge, that enable them to carry out their responsibilities effectively.

([Manxhari et al., 2017](#)) Diverse categories of organizations and job positions necessitate distinctive management skills essential for managers' success. [Cheetham and Chivers \(1996\)](#) and [Cheetham and Chivers \(1998\)](#) proposed a comprehensive set of management competencies to address this issue. [Ashwini et al. \(2012\)](#), [Asumeng \(2014\)](#), and [Hawi et al. \(2015\)](#) have expanded on these competencies. The BSC performance measurement framework classifies these competencies (such as knowledge, skill, and attitude) based on specific criteria to ensure the achievement of predetermined goals.

2.3. Hypotheses development

2.3.1. Management knowledge and SMEs' performance.

The systematic acquisition of management knowledge, or cognitive and conceptual competencies, enables senior managers to navigate the complexities of the business environment ([Sonia & Parvaiz, 2017](#)). To excel in their position, SMES directors need a broad understanding of planning, strategy, human resources, finance, marketing, leadership, and inspiration to inform executive decision-making

(Bhardwaj & Punia, 2013; Lara & Salas-Vallina, 2017), R&D, and innovation (Ncube & Chimucheka, 2019). This information assists in adhering to regulations, comprehending market requirements, and identifying trends to develop effective strategies (Bondarenko et al., 2021).

(Masoud & Al Khateeb, 2020) Knowledge enables directors to optimize cash sources, improve operational efficiency, and meet customer requirements. Knowledge is the foundation for proactive decision-making and effective business operations. Directors are not required to be specialists in every field, but they must have a solid grasp of finance, human resources, political culture, planning, customers, and markets (Ashwini et al., 2012; Asumeng, 2014; Manxhari et al., 2017; Thao, 2016). Following the discussion above, the following hypotheses are proposed:

H₁: *Management knowledge positively affects SMEs' performance.*

H_{1a}: *management knowledge positively affects SMEs' finance.*

H_{1b}: *Management knowledge positively affects SMEs' customers.*

H_{1c}: *Management knowledge positively affects SMEs' internal processes.*

H_{1d}: *Management knowledge positively affects SMEs' learning and growth.*

2.3.2. Management skills and SMEs' performance.

Numerous studies in New Zealand (Sonia & Parvaiz, 2017), Turkey (Aslan & Pamukcu, 2017), the Eastern Cape Province of South Africa (Ncube & Chimucheka, 2019), and the Jordan River Foundation (Masoud & Al Khateeb, 2020) have demonstrated the positive relationship between management skills and executive performance. Self-management, human resource management, corporate governance (Aslan & Pamukcu, 2017; Boyatzis, 2011; Ncube & Chimucheka, 2019; Sonia & Parvaiz, 2017); innovation, conflict resolution, coaching, and mentoring; and business management (Lara & Salas-Vallina, 2017; Masoud & Al Khateeb, 2020) are therefore essential for the practical application of knowledge in practice.

(Hawi et al., 2015) Small and medium-sized enterprises (SMEs) vest ultimate decision-making authority in the board of directors. Effective management skills substantially affect business performance, with a director's adaptability being crucial in making decisions that influence BSC indices (Aslan & Pamukcu, 2017; Masoud &

Al Khateeb, 2020; Ncube & Chimucheka, 2019; Sonia & Parvaiz, 2017). Consequently, SME directors must possess various skills, including self-management, team management, business management, and innovation skills. These managerial skills facilitate the development of ultimately reducing costs and creating value for the business; enhancing the quality of products and services and better satisfying customers' requirements; and developing superior products, services, and business processes. Consequently, the following hypotheses are advanced:

H₂: *Management skills positively affect SMEs' performance.*

H_{2a}: *Management skills positively affect SMEs' finance.*

H_{2b}: *Management skills positively affect SMEs' customers.*

H_{2c}: *Management skills positively affect SMEs' internal processes.*

H_{2d}: *Management skills positively affect SMEs' learning and growth.*

2.3.2. Management Attitude and SMEs' performance.

In the era of sustainable development, attitude is considered one of three factors, along with personality and behavior, constituting essential human qualities (Lara & Salas-Vallina, 2017). Management qualities are critical to businesses' success and long-term growth, as they influence administrators' behavior, attitudes, and personality traits (Cristina, 2015). These characteristics significantly impact the directors' personality and business manner, thereby determining the enterprise's long-term success (Quan & Khanh, 2012). Different research perspectives necessitate distinctive qualities, attitudes, and behaviors from directors (Ashwini et al., 2012; Loan, 2018). Managers must possess various attitude traits, such as confidence, serenity, inclusiveness, and creative intelligence, to make informed decisions, especially in emergencies.

Creative intelligence and adaptability are essential skills that enable the creation of valuable products and the renovation of obsolete ones to add value and differentiate the business (Khoshouei et al., 2013; Lara & Salas-Vallina, 2017; Masoud & Al Khateeb, 2020). Decisiveness and willingness to accept responsibility are complementary traits that disclose a sense of accountability in each assigned task and a desire to avoid placing blame on others. In business management, honesty, integrity,

and fairness significantly impact customer and employee satisfaction, fostering trust with partners and consumers and contributing to the sustainable growth of businesses and communities. Based on these arguments, the following hypotheses are proposed:

H₃: *Attitude positively affects SMEs' performance.*

H_{3a}: *Attitude positively affects SMEs' finance.*

H_{3b}: *Attitude positively affects SMEs' customers.*

H_{3c}: *Attitude positively affects SMEs' internal processes.*

H_{3d}: *Attitude positively affects SMEs' learning and growth.*

The research framework is presented in [Figure 1](#) below:

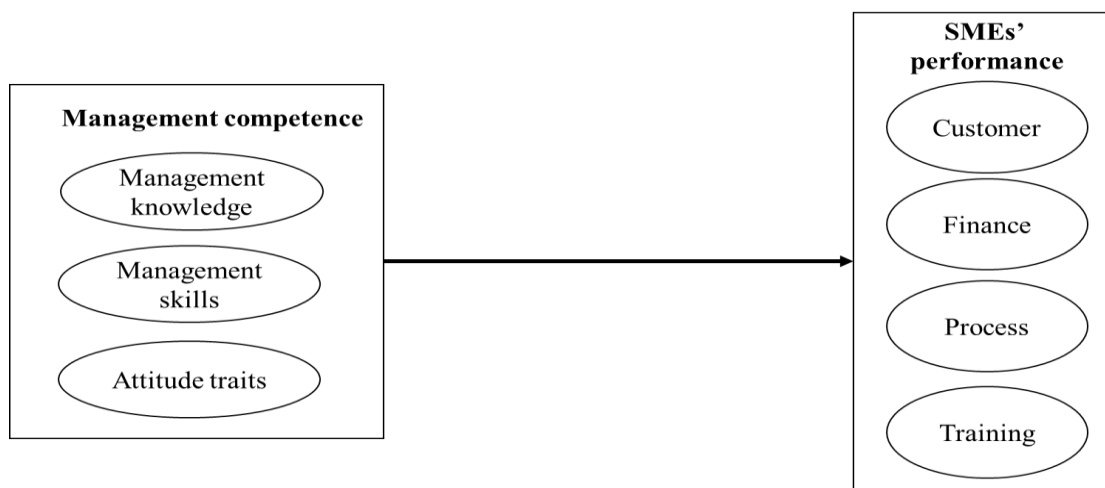


Figure 1. The research framework

3. Methodology

3.1. Sampling procedure

This study centers on the directors of small and medium-sized enterprises (SMEs) in the Vietnamese province of Thanh Hoa. A comprehensive analysis of the theoretical foundations of management capacity, components of management competence, and the measure of corporate governance performance guided the research sample selection. Because management capabilities and performance requirements vary across stages and contexts, the BSC management capabilities and performance measurement scale were meticulously devised and qualitatively researched. To ensure the validity of the research, 16 experts, including SME directors,

business association representatives, and scientists, were invited to take part in in-depth interviews. These interviews aimed to reach a consensus regarding the approach, the elements comprising the director's management capacity, the BSC-based method for measuring organizational performance, and the BSC's criteria.

Consequently, 33 of the 37 proposed scales were selected for inclusion in the experimental investigation. A second round of group interviews with nine directors of SMEs was conducted to refine the research questions further. These interviews aimed to ensure that the queries were understandable and to elicit responses from entrepreneurs without revealing competitively sensitive information. All inherited and proposed queries were translated into Vietnamese and deemed appropriate for inclusion in the experimental research.

The study employs two data collection methods to develop and validate the proposed research model: a pilot study and surveys for primary analysis. A pilot survey was conducted with 103 entrepreneurs from the Young Entrepreneurs Association in the province of Thanh Hoa. Cronbach's Alpha coefficients greater than 0.70 indicated that the factors "management knowledge," "management skills," "quality and attitude of management," and indicators in the BSC scale were all deemed qualified (Nunnally, 1978). Some survey questions were edited for orthography and semantics to prevent misinterpretation and guarantee the correct response to the intended content of the research. An official questionnaire with increased scale reliability was developed for the main study.

According to Hair Jr et al. (2017), a sample size of 200 observations is often sufficient for Partial Least Squares Structural Equation Modeling (PLS-SEM), whereas larger sample sizes may be required for more complex models or to estimate high levels of precision. The 457 responses collected for the primary research satisfied the minimum sample size requirement. 419 samples were retained for further analysis after screening and removing inadequate data due to incomplete information, rating all questions the same (38 samples). Among the 419 usable samples (69.0% or 289 responses from the online survey and 130 paper copies), 77.5% of responses came from males and 22.5% from females. Table 1 provides a summary of the respondents' general information.

Table 1. Descriptive of respondents' general information

| Factors | Proportion | Factors | Proportion |
|--|-------------------|---------------------------------|-------------------|
| Gender | 100% | Educational level | 100% |
| Male | 77.5% | Primary education | 8.7% |
| Female | 22.5% | Intermediate & associate degree | 22.5% |
| Age groups | 100% | Undergraduate | 59.4% |
| Under 25 years old | 7.2% | Graduate | 9.4% |
| 25-35 years old | 19.6% | Management experience | 100% |
| 35-45 years old | 42.8% | Less than 1 year | 12.3% |
| 45-55 years old | 23.9% | 1-3 years | 28.2% |
| Over 55 years old | 6.5% | 3-5 years | 26.1% |
| | | 5 -10 years | 22.5% |
| | | Over 10 years | 10.9% |
| Number of employees | | Capital | |
| Less than 10 employees | 30.4% | Under 3 billion VND | 21.7% |
| 10 - 49 employees | 54.3% | 3 - 20 billion VND | 61.6% |
| 50 - 99 employees | 5.1% | 20 - 50 billion VND | 10.1% |
| 100-199 employees | 4.3% | 50-100 billion VND | 2.9% |
| 200 or more | 5.8% | Over 100 billion VND | 3.6% |
| Business sectors | | Annual revenue | |
| Trade and service | 58.2% | Under 10 billion VND | 11.6% |
| Agriculture and forestry | 1.7% | 10 - 50 billion VND | 37.0% |
| Construction | 23.2% | 50 - 100 billion VND | 32.6% |
| Industry | 14.5% | 100 - 200 billion VND | 11.6% |
| Others | 2.4% | Over 200 billion VND | 7.2% |
| Business types | | Annual profit | |
| Limited liability companies with one member | 20.3% | Profit over 10 billion VND | 2.20% |
| Limited liability companies with two or more members | 52.2% | Profit from 1-10 billion VND | 13.0% |
| Holding companies | 18.1% | Profit less than 1 billion VND | 45.7% |
| Private enterprises | 6.5% | Break-even | 21.0% |
| Others | 2.9% | Loss of less than 5 billion VND | 16.7% |
| | | Loss of over 5 billion VND | 1.40% |

Note: Exchange rate at VND 1 to 0.000043 USD

3.2. Measurement

The study evaluated previous relevant studies' measurements using a five-point Likert scale ranging from 'strongly disagree' (1) to 'strongly concur' (5). Finance,

consumers, processes, and learning and development were evaluated using the BSC framework to determine the business's performance. Thirteen of the fifteen total items were inherited from [Manxhari et al. \(2017\)](#), [Thao \(2016\)](#), and [Masoud and Al Khateeb \(2020\)](#) and were developed following the research context. Three observed variables from [Manxhari et al. \(2017\)](#) and [Masoud and Al Khateeb \(2020\)](#) comprised the financial aspect.

Four observed variables adopted from [Manxhari et al. \(2017\)](#) and [Masoud and Al Khateeb \(2020\)](#) are used to measure the customer aspect. The internal process aspect was evaluated using five observed variables derived from the scales of [Manxhari et al. \(2017\)](#) and [Thao \(2016\)](#), along with two scales from qualitative research. Three items from [Manxhari et al. \(2017\)](#) and [Thi Nuong et al. \(2022\)](#) were utilized to assess learning and development.

Management knowledge was evaluated using six items derived from the scales of [Asumeng \(2014\)](#), [Thuy and Loan \(2019\)](#), and [Manxhari et al. \(2017\)](#) were measured by four skill categories inherited from the research of [Thao \(2016\)](#), [Sonia and Parvaiz \(2017\)](#), and [Masoud and Al Khateeb \(2020\)](#). Six observations comprised the self-management skill variable scale, five comprised the human resource management skill scale, and six comprised the business management skill scale.

Nine items inherited and developed from the scales of [Lara and Salas-Vallina \(2017\)](#), [Loan \(2018\)](#), and [Masoud and Al Khateeb \(2020\)](#), and two things evolved from a qualitative study in the current research context were used to measure the attitude variable.

3.3. Data analysis

SmartPLS 3.3 was used to analyze the data using Partial Least Squares - Structural Equation Modeling (PLS-SEM). The PLS-SEM analysis method consisted of two stages. In the first stage, the validity and reliability of the measurement model were evaluated, along with common method bias and multicollinearity. The second step involved model estimation and hypothesis testing utilizing the bootstrapping procedure, which generated values including R^2 (explained variance), f^2 (effect sizes), Q^2 value (model's predictive power), path coefficients, t-values, and p-values ([Hair et al., 2019](#); [Ringle et al., 2018](#)). The bootstrapping procedure used 5000 resamples to assess the proposed hypotheses. This PLS-SEM is increasingly used in various social

science-related fields, including management (Peng & Lai, 2012) because it applies a prediction-oriented approach to SEM that is compatible with small sample sizes and non-normal distributions. The explanation for both stages is provided in detail in the following section, along with empirical evidence.

4. Empirical result

4.1. Results of the measurement model assessment

The initial phase of PLS-SEM analysis is assessing the measurement model, which includes the reliability and validity of the research constructs. Referring to Hair et al. (2019), Cronbach's Alpha values and Composite Reliability (CR) are examined with a threshold value of 0.70 to assess the internal consistency reliability of the constructs. Cronbach's Alpha for all constructs is more significant than 0.7, ranging from 0.859 (Innovation skills) to 0.939 (Attitude) in Table 2, and CR values also exceed the threshold, ranging from 0.899 (Management knowledge) to 0.949 (Attitude). These results indicate that the internal consistency reliability of the research constructs has been met.

To determine the validity of the constructs, convergent validity is examined to determine whether a measure correlates well with other measures of the same constructs and whether the AVE value is more significant than 0.5 (Hair Jr et al., 2017). According to Table 2, all constructs have AVE values greater than 0.5, with team management skills having the lowest value at 0.608 and learning and growth having the highest value at 0.827. The convergent validity can be concluded to be satisfied. Examine the discriminant validity or the degree to which a construct is distinct from other constructs. Typically, the Fornell-Larcker criterion is used to evaluate discriminant validity. According to Fornell and Larcker (1981), the square root of the construct's AVE should be greater than its correlation with all other investigated constructs. Table 3 provides the results. Indicates that the discriminant validity requirement for all constructs is met. Using Henseler, Ringle, and Sarstedt (2014) as a reference, we also examined the cross-factor loading values and the Heterotrait-monotrait ratio (HTMT) criterion and found similar results. Thus, the constructs' discriminant validity is assured.

Table 2. Reliability and convergent validity results for measurement model.

| Variables | Items | Factor loading | VIF | Cronbach's Alpha | CR | AVE |
|-----------------------------------|----------|----------------|-------|------------------|-------|-------|
| Management knowledge | Know1 | 0.829 | 1.928 | 0.849 | 0.899 | 0.690 |
| | Know2 | 0.864 | 2.445 | | | |
| | Know3 | 0.757 | 1.576 | | | |
| | Know4 | 0.866 | 2.261 | | | |
| Self-management skills | Selfm1 | 0.846 | 2.519 | 0.923 | 0.939 | 0.721 |
| | Selfm2 | 0.836 | 2.420 | | | |
| | Selfm3 | 0.840 | 2.606 | | | |
| | Selfm4 | 0.859 | 3.634 | | | |
| | Selfm5 | 0.845 | 3.462 | | | |
| | Selfm6 | 0.867 | 2.969 | | | |
| Team management skills | TMS1 | 0.860 | 2.951 | 0.907 | 0.925 | 0.608 |
| | TMS2 | 0.813 | 2.316 | | | |
| | TMS3 | 0.795 | 2.253 | | | |
| | TMS4 | 0.805 | 2.390 | | | |
| | TMS5 | 0.765 | 2.174 | | | |
| | TMS6 | 0.684 | 1.918 | | | |
| | TMS7 | 0.846 | 2.878 | | | |
| | TMS8 | 0.646 | 1.800 | | | |
| Business management skills | Busm1 | 0.844 | 2.411 | 0.884 | 0.915 | 0.683 |
| | Busm2 | 0.776 | 1.980 | | | |
| | Busm3 | 0.840 | 2.103 | | | |
| | Busm4 | 0.840 | 2.359 | | | |
| | Busm5 | 0.828 | 2.352 | | | |
| Innovation skills | Ino1 | 0.810 | 1.962 | 0.859 | 0.899 | 0.640 |
| | Ino2 | 0.788 | 1.712 | | | |
| | Ino3 | 0.774 | 1.839 | | | |
| | Ino4 | 0.807 | 1.918 | | | |
| | Ino5 | 0.819 | 2.012 | | | |
| Attitude | Att1 | 0.862 | 3.386 | 0.939 | 0.949 | 0.674 |
| | Att2 | 0.817 | 2.901 | | | |
| | Att3 | 0.840 | 3.064 | | | |
| | Att4 | 0.834 | 2.755 | | | |
| | Att5 | 0.781 | 2.298 | | | |
| | Att6 | 0.830 | 2.962 | | | |
| | Att7 | 0.839 | 3.177 | | | |
| | Att8 | 0.720 | 1.816 | | | |
| | Att9 | 0.859 | 2.956 | | | |
| Customer | Cus1 | 0.889 | 2.127 | 0.870 | 0.920 | 0.794 |
| | Cus2 | 0.878 | 2.308 | | | |
| | Cus3 | 0.906 | 2.614 | | | |
| Finance | Finance1 | 0.850 | 2.125 | 0.860 | 0.905 | 0.705 |
| | Finance2 | 0.836 | 2.032 | | | |
| | Finance3 | 0.867 | 2.216 | | | |
| | Finance4 | 0.804 | 1.763 | | | |
| Internal process | Pro1 | 0.825 | 2.186 | 0.886 | 0.916 | 0.687 |
| | Pro2 | 0.834 | 2.281 | | | |
| | Pro3 | 0.825 | 2.167 | | | |
| | Pro4 | 0.862 | 2.549 | | | |
| | Pro5 | 0.795 | 1.753 | | | |
| Learning and growth | LG1 | 0.886 | 2.298 | 0.895 | 0.935 | 0.827 |
| | LG2 | 0.938 | 3.504 | | | |
| | LG3 | 0.903 | 2.955 | | | |

Table 3. Results of Fornell-Larcker Criterion

| Constructs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 Management knowledge | 0.830 | | | | | | | | | |
| 2 Self-management skills | 0.469 | 0.849 | | | | | | | | |
| 3 Team management skills | 0.345 | 0.383 | 0.780 | | | | | | | |
| 4 Business management skills | 0.397 | 0.480 | 0.506 | 0.826 | | | | | | |
| 5 Innovation skills | 0.420 | 0.481 | 0.405 | 0.488 | 0.800 | | | | | |
| 6 Attitude | 0.372 | 0.446 | 0.400 | 0.429 | 0.503 | 0.821 | | | | |
| 7 Customer | 0.387 | 0.462 | 0.416 | 0.499 | 0.483 | 0.473 | 0.891 | | | |
| 8 Finance | 0.430 | 0.463 | 0.430 | 0.536 | 0.459 | 0.392 | 0.476 | 0.839 | | |
| 9 Internal process | 0.343 | 0.431 | 0.400 | 0.490 | 0.462 | 0.465 | 0.459 | 0.513 | 0.829 | |
| 10 Learning and growth | 0.417 | 0.466 | 0.416 | 0.418 | 0.474 | 0.433 | 0.405 | 0.459 | 0.506 | 0.909 |

This investigation aims to validate the higher-order construct of management skills and BSC. Examining the outer weights with the repeated technique revealed that all indicator factor loading values for self-management skills, Team management skills, Business management skills, innovation skills, and the four dimensions of BSC are more significant than 0.5. This result indicates that all measured indicators meet the criteria for factors that can reflect lower-order constructs and comprise the higher-order construct. Additionally, all outer weights were statistically significant, with p-values less than 0.001 (Tables 4 and 5). It indicates that the measurement model of second-order constructs - management skills and BSC - and multicollinearity of lower-order constructs were also examined to demonstrate the significance of lower-order constructs' associations with higher-order constructs and the absence of multicollinearity issues. To reflect the higher-order construct, the model retained all four dimensions of management skills (self-management skills, Team management skills, Business management skills, and innovation skills) and all four dimensions of BSC (customer, finance, internal process, and learning and development).

Table 4. Outer Weights of the Second-order Construct - Management skills

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T-value | P-Values |
|---|---------------------|-----------------|----------------------------|---------|----------|
| Management skills -> Business management skills | 0.790 | 0.789 | 0.020 | 39.436 | 0.000 |
| Management skills -> Team management skills | 0.779 | 0.780 | 0.024 | 33.049 | 0.000 |
| Management skills -> Innovation skills | 0.734 | 0.735 | 0.028 | 26.117 | 0.000 |
| Management skills -> Self-management skills | 0.768 | 0.768 | 0.027 | 28.661 | 0.000 |

Table 5. Outer Weights of the Second-order Construct – BSC

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T-value | P-Values |
|----------------------------|------------------------|--------------------|----------------------------------|---------|----------|
| BSC -> Customer | 0.719 | 0.720 | 0.032 | 22.543 | 0.000 |
| BSC -> Finance | 0.792 | 0.791 | 0.022 | 36.507 | 0.000 |
| BSC -> Internal process | 0.839 | 0.839 | 0.017 | 48.954 | 0.000 |
| BSC -> Learning and growth | 0.741 | 0.740 | 0.025 | 29.161 | 0.000 |

In the second step, the structural model is assessed after demonstrating the measurement model assessment. In this study, we will test two models. The first model examines the relationship between each management competent dimension and overall BSC. In the second model, the relationship between each management competent dimension and each dimension of BSC are tested.

Table 6 presents the results of explained variance (R^2), which evaluates the structural model as the coefficient of determination and the predictive relevance (Q^2), which measures the model's predictive power or is considered a measure of an out-of-sample prediction (Hair et al., 2019; Ringle et al., 2018). Table 7 displays the results of effect sizes (f^2), which measures the change in R^2 in case of a specified exogenous construct is taken out of the model (Cohen & Diamant, 2019). As shown in Table 6, the R^2 coefficient of BSC is 0.604, which is adequate. It implies that the three exogenous constructs (Management knowledge, Management skills, and attitude) can explain 60.4% of the variance of the endogenous construct (BSC). Similarly, the R^2 coefficients of each dimension of BSC ranged from 0.358 to 0.394. These values of R^2 are relatively adequate (Hair Jr et al., 2016). The Q^2 values of all endogenous constructs are more significant than zero (Table 6). According to Hair Jr et al. (2016), the smaller the difference between the predicted and the original values, the greater the Q^2 values. Thus, the model's predictive accuracy.

Table 6. Results of explained variance (R^2) and predictive relevance (Q^2)

| Variables | R^2 | R^2 adjusted | Q^2 (=1-SSE/SSO) |
|---------------------|-------|----------------|--------------------|
| BSC | 0.604 | 0.601 | 0.269 |
| Customer | 0.388 | 0.383 | 0.303 |
| Finance | 0.394 | 0.389 | 0.271 |
| Internal Process | 0.358 | 0.353 | 0.240 |
| Learning and growth | 0.359 | 0.354 | 0.290 |

Furthermore, the effect sizes of the predictor constructs are evaluated using f^2 effect size. Guidelines for assessing f^2 are that values of 0.02, 0.15, and 0.35 sequentially represent small, medium, and large effects (Cohen & Diamant, 2019). As seen in Table 7, management skills have large and medium effect sizes, while management knowledge and attitude have small effect sizes in both models.

Table 7. Results of effect sizes (f^2)

| Variables | Dependent variable | | | | |
|----------------------|--------------------|----------|---------|------------------|---------------------|
| | BSC | Customer | Finance | Internal Process | Learning and growth |
| Management knowledge | 0.031 | 0.007 | 0.029 | 0.002 | 0.024 |
| Management skills | 0.468 | 0.185 | 0.230 | 0.168 | 0.147 |
| Attitude | 0.057 | 0.037 | 0.002 | 0.039 | 0.021 |

To test the proposed hypotheses, the paths between researched constructs were analyzed using Bootstrapping with 5000 resamples and a significance level of 0.05. Table 4 provides the structural model assessment results. The H1, H2, and H3 hypotheses examine the effects of management knowledge, management abilities, and attitude on BSC. With coefficient values of 0.132, 0.577, and 0.184, respectively, H1, H2, and H3 were all supported at the 95% level of statistical significance.

Hypotheses H1a, H1b, H1c, and H1d independently examined the effects of management knowledge on each dimension of BSC. The results indicated that the impacts of management knowledge on finance ($b=0.157$, $p=0.001$) and LG ($b=0.146$, $p=0.003$) were positively significant, whereas the effects of management knowledge on consumer and internal processes were not. Therefore, only H1b and H1d were supported, while H1a and H1c were not.

Similarly, the results supported Hypotheses H2a, H2b, H2c, and H2d. In other words, the effects of management skills on customers ($b= 0.452$, $p=0.000$), finance ($b= 0.501$, $p=0.000$), internal process ($b= 0.441$, $p=0.000$), and LG ($b= 0.146$, $p=0.000$) were all significantly positive. The impact of attitudes on customers ($b= 0.184$, $p=0.001$), internal processes ($b= 0.194\%$, $p=0.000$), and learning and growth ($b= 0.142$, $p=0.008$) was statistically significant. Therefore, H3a, H3c, and H3d were supported, but H3b was not.

Table 8. Results of path analysis.

| Hypothesis | Path | Coeff. | SD | T-value | P-value | Decision |
|------------|---|--------|-------|---------|---------|---------------|
| H1 | Management knowledge-> BSC | 0.132 | 0.039 | 3.379 | 0.001 | Supported |
| H1a | Management knowledge -> Customer | 0.078 | 0.049 | 1.598 | 0.110 | Not supported |
| H1b | Management knowledge -> Finance | 0.157 | 0.048 | 3.301 | 0.001 | Supported |
| H1c | Management knowledge -> Internal process | 0.042 | 0.047 | 0.898 | 0.369 | Not supported |
| H1d | Management knowledge -> Learning and growth | 0.146 | 0.050 | 2.952 | 0.003 | Supported |
| H2 | Management skills -> BSC | 0.577 | 0.045 | 12.958 | 0.000 | Supported |
| H2a | Management skills -> Customer | 0.452 | 0.053 | 8.609 | 0.000 | Supported |
| H2b | Management skills -> Finance | 0.501 | 0.057 | 8.848 | 0.000 | Supported |
| H2c | Management skills -> Internal process | 0.441 | 0.054 | 8.206 | 0.000 | Supported |
| H2d | Management skills -> Learning and growth | 0.413 | 0.056 | 7.388 | 0.000 | Supported |
| H3 | Attitude -> BSC | 0.184 | 0.042 | 4.396 | 0.000 | Supported |
| H3a | Attitude -> Customer | 0.184 | 0.054 | 3.434 | 0.001 | Supported |
| H3b | Attitude -> Finance | 0.047 | 0.052 | 0.898 | 0.369 | Not supported |
| H3c | Attitude -> Internal process | 0.194 | 0.048 | 4.043 | 0.000 | Supported |
| H3d | Attitude -> Learning and growth | 0.142 | 0.053 | 2.674 | 0.008 | Supported |

5. Discussion

5.1. Main findings

The findings of this study reaffirm the robust and positive correlation between the management competency of the directors (knowledge, skills, and attitudes) and organizational performance in SMEs, which is consistent with prior research by [Masoud and Al Khateeb \(2020\)](#), [Hawi et al. \(2015\)](#), [Manxhari et al. \(2017\)](#), and [Ncube and Chimucheka \(2019\)](#). Management skills are consistently designated as having the most significant and decisive impact on all aspects of business performance (finance, customer, internal process, learning, and growth). In contrast, management knowledge and attitude have minimal impacts on specific aspects.

Management knowledge has the most negligible impact on business performance, mainly when each factor is evaluated separately. The findings appear to contradict the research conducted by [Loan \(2018\)](#) and [Thao \(2016\)](#). Still, they are consistent with the results of [Nowiński et al. \(2017\)](#), which indicate that knowledge and training have little effect on the performance of SMEs. This finding provides important insights into a prevalent phenomenon in Vietnam. Many directors are well-versed in business administration but struggle to run a successful business due to

difficulties implementing strategies that meet market and customer needs, resulting in waste and failure. Although knowledge and professional comprehension are essential for operating a business, they do not play a crucial role because the business environment is frequently volatile and complex, requiring the application and synthesis of knowledge. In other words, converting academic knowledge into specific and adaptable actions is crucial to success, particularly for small and medium-sized enterprises (SMEs) with limited potential and resources. Thus, knowledge and excellent knowledge are insufficient if there is inadequate potential and resources, which will impede the operational process and business outcomes.

On the contrary, management skills are indispensable to the success of SMEs in every respect. Governance is an operational process; a director with proficiency in operating can make scientific and flexible decisions to effectively and proactively resolve situations (Ncube & Chimucheka, 2019). Bondarenko et al. (2021) confirmed the impact of "soft and hard skills" on the performance of small and medium-sized enterprises (SMEs), where the director may not need extensive knowledge but must have specialized skills, especially modern management skills to guarantee the success of the business. In other words, directors must be able to proficiently implement their knowledge in operational practice to gradually develop management skills, enabling them to make proactive and adaptable management decisions in all situations. According to a survey conducted by Vietnam's Ministry of Planning and Investment, the business failure rate during the first few years of operation is highest due to a lack of management skills and experience.

According to Ashwini et al. (2012), attitude is a significant component of management capacity, playing a decisive role in the management process by contributing to the formation of directors' manner and organizational culture. According to research findings, however, the attitude has only a moderate effect on the efficacy of businesses and does not affect the financial aspect. This means that a positive attitude alone is insufficient to change revenue and profit targets in the short term, as attitudes are typically viewed as the "tip of the iceberg" that complements the operational process rather than driving it, especially in terms of financial indicators. In contrast, attitudes positively affect customers, internal processes, learning, and

development. Specifically, a director who demonstrates ethical behavior, high social responsibility, a willingness to learn, and fairness can generate attractive forces that influence employees and customers, resulting in trust and long-term attachment (Khoshouei et al., 2013; Masoud & Al Khateeb, 2020).

The findings indicate that the three exogenous constructs of management knowledge, management skills, and attitude account for 60.4% of the variance in the endogenous construct, SEMs Performance (BSC). Thus, it can be concluded that a director's management skills significantly affect SMEs' efficacy.

5.2. Policy implications

According to the BSC's multidimensional evaluation criteria, the research findings reaffirmed the substantial effects of the director's competency on the business's performance, with management skills having the most significant impact. This highlights several local government recommendations. First, the government should focus more on enhancing the management skills of directors of small and medium-sized enterprises (SMEs), particularly in team management, business management, and innovation. Additionally, entrepreneurial education and training institutions should enhance their curriculum by emphasizing practical experience over theory. In addition, networking activities should be established to facilitate the sharing of management experiences among entrepreneurs and to promote case studies and the exchange of knowledge from business practices so that each entrepreneur can learn from their own operational experiences. Last, but not least, it is essential to prioritize activities that support SMEs in terms of the environment, and policies for accessing resources and markets, given that research demonstrates that the management competence of the director accounts for over 60% of the outcomes, with the remaining 40% attributable to other factors such as the business environment, customers, and policies.

5.3 Contributions

It is anticipated that the investigation will provide both theoretical and practical contributions. Theoretically, it contributes by systematizing the impact of management competencies on business performance and providing empirical

evidence. The study measured multidimensional results from a BSC perspective, yielding detailed cost measurements as the foundation for solution proposals. Although BSC is a novel method for measuring business performance, many SMBs have not yet adopted it. Therefore, this study aims to disseminate information and raise awareness among managers regarding how to operate and measure performance. In a practical sense, the research findings explain the phenomenon of individuals who are well-trained in business administration but struggle to run their businesses. Another significant contribution of the study is that it offers a novel perspective that differs from the conventional belief in Vietnam, a Confucian-influenced society, that "attitude" accounts for 80% of success. In reality, abilities and experience are the most critical determinants of managerial effectiveness. The research findings provide a crucial foundation for proposing policy implications that will enhance the future management capacity of directors.

6. Conclusion

Using the BSC as a framework, this study examines the relationship between directors' management competence and the performance of SMEs. This study analyzes data from 419 SME directors in Thanh Hoa, Vietnam, using Partial Least Squares Structural Equation Modeling (PLS-EM). The results imply a positive correlation between directors' management competence and the performance of SMEs, with management skills being the most influential factor across all categories. In addition, the study indicates that knowledge and attitude are necessary for the management process but are not decisive in managing small and medium-sized enterprises. Based on these findings, the government should prioritize programs that enhance the management skills of SME directors over theoretical training activities.

Despite its substantial theoretical and applied contributions, the study has some limitations. Firstly, the research results generally describe SMEs across various industries but lack industry- or business-specific comparisons. Therefore, future research must embrace a broader, more objective perspective to provide better insights. Second, while the study analyzed the effects of all four skill groups on business performance, it does not specify which skill group has the most significant

impact. It suggests a new direction for future research into the relationship between specific management skills and operational outcomes. In addition, the study did not account for the disparities in management competency between male and female directors, which have been shown to have varying effects on operating results. Therefore, further research into gender diversity in management competency and organizational performance is a fruitful endeavor.

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