

Article

Impact of Management Indicators on the Business Performance of Hotel SMEs in Mexico

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Abstract: Empirical studies on management control and business performance are growing. However, a research gap exists regarding the tourism development/hotel small- and medium-sized enterprises (SMEs), particularly in terms of administrative management and organizational functions. Hence, drawing from the principles of management control, specifically about the utilization of business performance evaluation techniques, this study aimed to construct a business performance index for hotel SMEs in the state of Yucatán, Mexico. To this end, the index evaluated multiple variables including investment, profitability, financing sources, operating metrics, and the utilization of financial information. To accomplish the goals, this study administered surveys to the proprietors/administrators of 139 hotel SMEs. It employed a quantitative approach and utilized the multiple linear regression model with the forward technique. Its findings demonstrate that the utilization of financial information and funding sources have the most substantial correlations with business performance. As theoretical and practical implications, a business performance index arose, replying to the needs presented by the Mexican Association of Hotels in Yucatán.



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1. Introduction

The international hotel industry has expanded significantly in the past decade (Cheng et al., 2019; Yang, 2019). This situation emphasizes the importance of effectively managing information and results to be successful and competitive in the international hotel industry (Heo, 2017). Experts claim that to achieve success in business performance, hotel managers must optimize the decision-making process (Hua et al., 2015).

Mexico is one of the most popular travel destinations in the world because it provides a variety of tourism activities, such as adventure, gastronomy, wellness, sports, religion, ecotourism, sports, and medical (Muñoz et al., 2020). Competition has an impact on lodging, which is a crucial activity for creating jobs in the tourism industry. To be more competitive on a worldwide scale, it is therefore essential to look for managerial and economic alternatives (Muñoz et al., 2020). The hotel industry in Yucatán is always evolving because of shifting consumer habits. Customers contemplate new experiences related to the tourism offering since they are more knowledgeable and utilize Information and Communication Technology (ICT) to conduct various types of research. To satisfy their

needs, this industry must be prepared ([Instituto Tecnológico Hotelero, 2017](#)). Indicators that facilitate improved business management decision-making are the primary method of measuring profitability in the hotel sector ([Muñoz et al., 2020](#)). A city's infrastructure and services make it an international destination, making the hotel sector the foundation of the tourism industry's value chain. As a result, providing high-quality hotel services becomes crucial for ensuring visitor happiness and attracting more visitors from both domestic and foreign countries to the destination ([Monsalve & Hernández, 2015](#)).

The Mexican Association of Hotels (hereon, the Association) in Yucatán has expressed deep concern regarding the current challenges faced by the members of the vital hotel industry in the state of Yucatán. The closing of these enterprises signifies, among several phenomena, the drastic reduction in employment opportunities in the region's hotel industry and a decrease in its market share. Hence, the Association has requested that a study be conducted to generate results that can aid the stabilization of the industry's precarious current situation and establish the foundations for its resurgence.

Management indicators constitute a highly valuable instrument for effectively managing company activities, areas, and/or processes ([Monroy & Simbaqueba, 2017](#); [Perez & Bojorquez, 2021](#)). Irrespective of the management model adopted by a business, it is evident that the former's monitoring must be incorporated into the latter's operations ([Dogru & Bulut, 2018](#)). Monitoring is essential for a company to not only assess its business performance in the market but also to make precise real-time decisions ([Muñoz et al., 2020](#)). Indicators used for monitoring can enhance the effectiveness and efficiency of organizational management by enabling members to assess business performance, review management, and enhance learning within their company ([Gursoy & Chi, 2020](#)). When considering the business performance of hotels, it is crucial to consider a comprehensive collection of indicators that enable the interpretation of outcomes, the assessment of hotels' financial condition, and the evaluation of the overall business performance of a hotel business ([Wong et al., 2023](#)). In exemplifying the above argument, this study aims to build a business performance index for hotel SMEs in a major tourist destination whose hotel industry is in a precarious state: the state of Yucatán in Mexico.

This study seeks to answer the following research questions (RQ):

- RQ1: Does the use of management indicators improve decision-making among hotel SME managers?
- RQ2: Do management indicators allow better investment and financing decision-making for hotel SMEs?
- RQ3: Does the use of financial information allow for better decisions to be made by hotel SMEs?
- RQ4: Does management control in hotel SMEs lead to better business performance?

First, a theoretical framework was elaborated, describing the business performance of hotel SMEs and the importance of management indicators and management control theory. Second, the methodology was described, explaining measurements, content validity, data collection, and data analysis. Third, the results of this study provide theoretical and practical contributions that can enable us to better understand the effect of management control via indicators regarding the business performance of hotel SMEs. This study's findings establish a foundation for future research on hotel management metrics to enhance decision-making. It specifically examines the relationships among profitability, investment, financing sources, operational metrics, and the utilization of financial data. Consequently, this study's findings can provide significant management insights to stakeholders, including hoteliers, policymakers, and hotel managers.

2. Theoretical Framework and Research Question

2.1. Business Performance of Hotel SMEs

In general, organizations must adapt to the challenges posed by an increasingly competitive world by creating sustainable advantages and seeking tools to effectively control and measure their business performance (Bertolli et al., 2017; Barradas et al., 2021). Hence, it is imperative to quantify business performance to acquire valuable, pertinent, and dependable data that empower executives to devise strategic initiatives aimed at enhancing their companies' efficacy and competitiveness (Hajar, 2015; Al-Dhaafri et al., 2016; Tzeremes & Tzeremes, 2021). The subjective assessment of business performance has become increasingly popular in recent years due to challenges in accessing a given company's financial data and the effectiveness of such assessment in evaluating the influence of intangible assets (Asree et al., 2010; Camps & Luna-Arocas, 2012). Nevertheless, multiple studies indicate that it is important to supplement the business performance measurement with a company's financial data (Barradas et al., 2021).

To succeed in the contemporary competitive environment of the hotel industry and improve overall business performance, hotel businesses are required to optimize operational efficiency, strengthen financial management, and offer attractive services (Kim et al., 2022). In this regard, the current research on hotel SMEs focuses mainly on issues related to revenue and strategies aimed at increasing the profitability of these businesses (Gomez et al., 2017). These strategies encompass various aspects such as pricing tactics, demand prediction, inventory distribution and technical methodologies, and the management and influential factors associated with hotel revenue management (Xu et al., 2019). Altin et al. (2017) and Song and Wei (2024) argue that a well-structured business performance yields favorable outcomes in terms of financial performance, customer connections, and operational efficiency. The successful management of hotel SMEs' business performance can be achieved through the implementation of efficient financial information strategies (Sebastián et al., 2000; Rummler & Brache, 2013; Cruz et al., 2020; Kantis et al., 2020). Measuring business performance involves multiple elements, including business performance and the utilization of financial information, sources of funding, and operating indicators (Noe et al., 2014; Ali et al., 2021).

There are many literature reviews on the topic of generating a management indicator. These reviews—conducted by Caro et al. (2011); Carmona (2012); Campos et al. (2024); Tang and Jang (2017); Vujović and Arsić (2018); Khan and Hefny (2019); Yang (2019); Al-Shourah and Shourah (2020); Gursoy and Chi (2020); Lima Santos et al. (2016, 2020a, 2020b, 2021); Perez and Bojorquez (2021); Ma (2021); Valeri (2022); Khanna and Sharma (2023); and Vivel-Búa and Lado-Sestayo (2023)—cover various aspects of this topic, although not from an administrative and organizational perspective. This lacuna can be interpreted as the initial overarching deficiency in the wider body of relevant literature. Hence, this gap serves as the initial focus of our literature review before our analysis.

2.2. The Importance of Indicators Regarding Business Management in Hotel SMEs

Currently, the ongoing transformation processes of companies, which encompass technical advancements, process automation, economic development, and the proliferation of numerous enterprises, pose challenges to their sustenance and success in their respective environments (Vivel-Búa & Lado-Sestayo, 2023). It is, therefore, crucial for business units to be ready to effectively handle their financial resources so that they can meet the requirements associated with the abovementioned processes (Caro et al., 2011; Vujović & Arsić, 2018; Khanna & Sharma, 2023). Consequently, every company must ascertain its economic and financial state to identify existing issues, significant fluctuations, and the underlying factors responsible for the same (Lima Santos et al., 2021). To accomplish

the same, the system of a given industry must possess the proper tools that enable its member companies to identify their faults, implement appropriate remedial actions, anticipate future outcomes, and achieve more effective planning (Lima Santos et al., 2020b; Ma, 2021). Indeed, the main objective here is to obtain quantitative relationships that aid in a company's decision-making.

For several authors (Yang, 2019; Al-Shourah & Shourah, 2020; Valeri, 2022), the fundamental tenets of financial management in the hotel industry suggest the utilization of indicators for the construction of a financial management index that aids in the decision-making of hotel companies. An index is a conceptual framework constructed using metrics such as profitability, finance source, investment, operation indicators, and the utilization of financial information and operating indicators (Caro et al., 2011; Duraan et al., 2017). Using a system that implements this index can enhance a hotel's ability to manage expenses and its fundamental competitive advantage as well as its capacity to establish a solid basis for its future growth (Agiomirgianakis et al., 2013; Tang & Jang, 2017; Dimitrić et al., 2019; Khan & Hefny, 2019; Lima Santos et al., 2020a).

2.3. Management Control Theory

Management control theory emphasizes the use of control mechanisms at every level of an organization (Liu et al., 2012; Silva et al., 2021). The organization can employ many methods of control to achieve its desired outcomes, including the following: (1) implementing an effective organizational structure, (2) utilizing behavioral controls such as organizational norms and rules, or (3) employing business performance assessment techniques (Barrows & Neely, 2012). Management control theory advocates for the implementation of indicators in various domains so that managers are enabled to effectively monitor their organizations' business performance (Liu et al., 2012). It emphasizes the correlation between an organization's strategic objectives and the measurement of its business performance (Berry et al., 1998; Vujović & Arsić, 2018).

In heeding management control theory, managers can synchronize their business performance measurement based on specific indicators, which leads them to eventually contribute to the achievement of organizational goals (Burkov et al., 2015; Caban-Garcia et al., 2017). The management control system encompasses the diagnostic or analytical processes aimed at comprehending the fundamental factors that influence the behavior of physical systems (Jokipii, 2010; Caban-Garcia et al., 2017; Kantis et al., 2020; Rohvein et al., 2020). To be precise, financial and operating indicators are employed in hotels' organizational management control so that companies can effectively monitor and sustain their strategic plans; these indicators are essential elements of information-gathering projects aimed at enhancing hotel companies' decision-making (Peteraf, 1993; Carmona, 2012; Ferraz et al., 2013; Silva et al., 2021).

2.4. Variable Development

2.4.1. Investment

One aspect highlighted in the theory of management control is the utilization of procedures that enable the assessment of company performance. Additionally, it is crucial to construct indicators designed to track the advancement of a given company's strategic initiatives (Barrows & Neely, 2012; Ferraz et al., 2013). In ensuring the long-term viability of a hotel's competitive edge, the critical success factors related to competition are identified as the following: infrastructure, workforce, service quality, environmental stewardship, information systems, and innovative technologies (Dimitrić et al., 2019). Management indicators are essential for a company's success, enabling business performance assessment, informed decision-making, and strategic investment. Understanding organizational

behavior enables the assessment of process efficiency, the identification of improvement areas, and the facilitation of informed decisions regarding resource allocation, including investments. (Vujović & Arsić, 2018; Dev, 2020).

2.4.2. Profitability

Another indicator one can use in generating the business performance index is profitability (Kim et al., 2012; Ferraz et al., 2013). The assessment of the profitability of hotel SMEs encompasses several methodologies, with the primary approach centering on the analysis of price and occupancy variables within designated periods (Lima Santos et al., 2021; Valeri, 2022). This analysis is conducted by utilizing the indicators that gauge the money generated per available room (Carmona, 2012; Kantis et al., 2020). In their studies, Agiomirgianakis et al. (2013) and Khan and Hefny (2019) discover that variables such as age, size, and leverage have positive and statistically significant impacts on the profitability of companies operating within the tourism industry. Management indicators enable the quantification of a hotel company's profitability, procedures, and areas of responsibility, thus facilitating the assessment of the effectiveness of implemented initiatives. Analyzing profitability enables the identification of resource optimization opportunities, including reducing superfluous expenditures and enhancing supplier selection (Valeri, 2022).

2.4.3. Funding Sources

Capital generally accrues from internal contributions, share capital, and external funds in the form of loans taken for financing purposes (Caro et al., 2011; Vujović & Arsić, 2018). The domain of business practice has demonstrated that long-term funding is frequently sourced from private funds, including a company's funds, in addition to long-term loans (Ristić & Komazec, 2011). Conversely, short-term financing is obtained through bank loans, Lombard loans, short-term securities, and commercial loans (Agiomirgianakis et al., 2013; Khan & Hefny, 2019). This involves the provision of commodities, equipment, and money to support the business operations of enterprises (Lima Santos et al., 2021). Management indicators and finance decisions are essential for business success, allowing organizations to make educated, strategic choices that enhance their business performance. Management indicators aid financing decisions by assessing the utilization of capital to attain development and profitability goals (Khan & Hefny, 2019).

2.4.4. Operating Indicators in Hotel SMEs

According to Lima Santos et al. (2020a), a thorough understanding and interpretation of the balance sheet is crucial for effective management on the part of hotel SMEs. In the present setting of global competitiveness, in the hotel industry, as Lima Santos et al. (2021) identify, the revenue per room (RevPAR) and the occupancy ratio are the most widely used operating indicators. The primary objective of hotels is to maximize profitability, which necessitates efforts to augment revenue and minimize expenses (Gomez et al., 2017). Hence, the TRevPAR, also known as total income per available room, is regarded as a comprehensive metric that considers all income streams within the given hotel industry (Ristić & Komazec, 2011; Lado et al., 2017; Lima Santos et al., 2021). Management indicators facilitate the regulation and enhancement of operational processes, including working capital management, cost management, assessment of room rental outcomes, amenities, and restaurant performance, if applicable, thereby minimizing expenses and augmenting efficiency (Gomez et al., 2017).

2.4.5. Use of Financial Information

According to Ristić and Komazec (2011), the use of financial information serves as a representation of the economic state of hotel companies since it quantitatively reveals their

situation. In essence, financial information functions as a diagnostic tool, providing a comprehensive overview of a company's economic operations (Gomez et al., 2017). Concerning the quality of financial information, Lima Santos et al. (2020b) argue that it should possess certain attributes, including (but not limited to) relevance, reliability, completeness, clarity, comparability, timeliness, and rationality. These attributes serve as the fundamental basis for the decision-making processes undertaken by both internal and external stakeholders of a company (Lima Santos et al., 2020a, 2021; Zhang & Xie, 2023). Additionally, Caro et al. (2011), Carmona (2012), and Song and Wei (2024) assert that financial information plays a crucial role in facilitating communication and coordination among various stakeholders who possess an interest in the financial behavior of hotel companies. Management indicators and financial data are essential for efficient hotel administration, facilitating informed decision-making and operational enhancement. Utilizing financial data facilitates continuous oversight of the hotel's business performance, discerning patterns, and implementing corrective actions to avert departures from goals (Song & Wei, 2024).

2.5. Hypothesis Development

According to Gitman (2003), the primary duty of an administrator or manager within a company is to evaluate and scrutinize proposed investment decisions to guarantee that only those enhancing the firm's worth are executed. Decision-makers utilize numerous strategies and tools to estimate the cash flows generated by an investment and subsequently apply suitable decision-making methods to assess the investment's effect on the company's value. Only investments that have the potential to elevate the stock price should be undertaken.

H1. Management indicators allow for better investment decision-making.

Profitability management indicators aim to evaluate the profit made concerning the investment that produced it, considering either total assets or equity (Guajardo Cantú, 2002). Consequently, it is imperative to focus on profitability analysis, as organizations must generate profits by the conclusion of a fiscal year to ensure their survival. In their absence, they will be unable to attract external financing and effectively sustain their routine operations. Consequently, management indicators are crucial for decision-making in SMEs across all economic sectors (Gomez et al., 2017).

H2. Management indicators allow for better profitability decision-making.

Khan and Hefny (2019) assert that hotel management necessitates the utilization of diverse indicators, including those that facilitate finance selections. It is essential to evaluate the various funding options while also assessing the associated risks of each.

H3. Management indicators allow for better financing decision-making.

Hotel management should be regarded as a paramount operational priority, necessitating the adoption of three fundamental principles: first, a willingness to compete; second, the requisite capacity to confront this challenge; and third, the possession of relevant indicators for informed decision-making. Decisions about hotel operations ensure stability and must be made every day by management in financial and other domains. Management must utilize indications for more decisive decision-making in the company's operations (Calderón, 2024).

H4. Management indicators allow for better operational decision-making.

[Estupiñán \(2020\)](#) mentions that the function of management indicators is to discover deeper data about a company and that fundamental decisions for the smooth running of an economic entity are derived from them. They serve as an effective means to gather extensive financial data that facilitate the comparison of corporate business performance. The author emphasizes that the utilization of financial information is crucial for enhanced decision-making within organizations.

H5. *Management indicators allow for better decision-making through the use of financial information.*

3. Methodology

A survey was conducted, and informed consent was obtained from all the subjects involved in this study.

3.1. Measurements

The survey employed in this study initially included 30 items representing six constructs. The index encompassed in the study were profitability, financing sources, investment, utilization of financial information, operating indicators, and company business performance. While [Ristić and Komazec \(2011\)](#) provided three items related to the use of financial information, eight additional indicators for assessing funding sources were derived from the existing literature ([Vujović & Arsić, 2018](#)). Overall, this study utilized six investment items and six scale indicators ([Lima Santos et al., 2020b, 2021](#)) that were generated from prior research. These indicators were used to assess operational business performance, while six additional indicators were employed to measure profitability ([Kim et al., 2012](#); [Ferraz et al., 2013](#)). Ultimately, four metrics were employed by this study to gauge business performance ([Barradas et al., 2021](#)).

The evaluation of each item was carried out using a five-point Likert-type scale ([Likert, 1976](#)). In addition, inquiries regarding various aspects of the companies studied were included, such as the markets served, staff size, total number of rooms, room occupancy rate, average duration of stay, number of customer complaints received, percentage of reservations where the applicant did not ultimately stay, types of services provided, establishment category, and the presence of a complaint book. Six sociodemographic items were also included. A numerical value ranging from 1 to 5 was assigned to each survey response, where 5 denoted a significant impact on the variables being compared and 1 denoted a minuscule or negligible impact. The questionnaire was drawn up in Portuguese and translated into Spanish by four linguistic experts with specialized knowledge of both languages. To address inconsistencies in language, the survey tool was translated into Spanish ([Brislin, 1970](#)).

3.2. Content Validity

The content validity of the questionnaire was assessed by six experts with specialized knowledge in the field of research. Six hotel managers assessed the poll to verify that they could sufficiently analyze the signs of business development. Moreover, four items were incorporated into the survey instrument to comprehensively and explicitly represent the financing source indicator: “Crowdfunding”, “Private loans with natural persons”, “Auxiliary credit organizations”, and “Factoring”. The survey was then pilot tested with three PhD candidates (also hotel owners). Their comments prompted the reformulation of several aspects related to investment indicators, profitability, and utilization of financial information.

A preliminary assessment was carried out using a group of 30 hotel managers, who were explicitly instructed to submit their opinions on the given issues; this assessment yielded insights into business performance and sociodemographic data. Subsequently,

the revised survey was administered to the data collection instrument. Additionally, the assessment of the instrument's validity and reliability involved several procedures. These included a comprehensive examination of relevant literature, expert review to assess content validity, a construct validity review using factor analysis, and a reliability analysis using Cronbach's α coefficient. Based on the validity-related findings, it was shown that the Kaiser–Meyer–Olkin (KMO) sample adequacy index demonstrated satisfactory values in all instances over "0.7", a threshold deemed sufficient concerning the utilization of factor analysis by multiple researchers (Cerny & Kaiser, 1977). The results refuted the null hypothesis that posited an insufficient correlation between the variables (profitability, funding sources, use of financial information, operating indicators, and investment). This rejection was supported by the p -value obtained from the Bartlett test. Therefore, the correlation was deemed acceptable, and the utilization of factor analysis was deemed pertinent. In each of the five variable-related instances, the first element exhibited a proportion that was almost equal to or exceeded 70% (see Tables 1 and 2). This threshold indicates that the variables tend to cluster around their respective constructs, namely, profitability, financing sources, usage of financial information, operating indicators, and investment.

Table 1. Results of construct validation of the instrument.

Section	KMO	p -Value Bartlett Test	Percentage of Explained Variance
Use of financial information	0.813	0.000	75.0
Investment	0.788	0.000	80.3
Operating indicators	0.805	0.000	68.9
Financing sources	0.777	0.000	79.8
Profitability	0.777	0.000	55.3

Table 2. Reliability analysis.

Section	Cronbach's Alpha Coefficient
Use of financial information	0.974
Investment	0.984
Operating indicators	0.974
Financing sources	0.984
Profitability	0.960
General	0.989

Based on the findings, it can be observed that the Cronbach's alpha coefficient for each segment surpasses 0.95. Consequently, the reliability of the complete instrument was assessed through the coefficient, yielding a value of 0.983. This table serves as an indicator of the instrument's reliability.

3.3. Data Collection

This study was conducted by CEDENE, a business specializing in person-to-person surveys; it cross-referenced and authenticated the business and personnel details of all respondents by utilizing each hotel's registration number and its manager's legal name. During the selection of questions that would be included in the survey, individuals who did not meet the necessary qualifications were eliminated from the survey system. The selected participants were requested to provide the name of the hotel they were overseeing along with its economic classification. Each respondent's hotel name and economic category were displayed in each survey item for all questions.

All participants in this study were hotel managers who were 18 years of age or older and had a minimum of 1 year of experience in the same hotel role at the time of the survey's

completion. This study was conducted between January 2024 and June 2024. An email was sent to administrators requesting the provision of context for the research and the guarantee of confidentiality, encouraging them to participate in this research initiative. At the beginning of the questionnaire, definitions of “profitability, investment and funding sources” were presented.

According to the statistics presented by the Mexican Association of Hotels in Yucatán (*Asociación Mexicana de Hoteles en Yucatan*, 2022), Yucatán has a total of 139 hotel SMEs, all of which were considered part of the sample population for this study. The study sample, therefore, consisted of all these hotels, 69% of which are situated in the capital city of Merida and the remaining 31% located in various localities within Yucatán.

3.4. Data Analysis

For data analysis, this study used the multiple linear regression model with the forward and threshold methods (Montero, 2016). It identified 5 variables (Napierala & Birdir, 2017; Dimitrić et al., 2019; Khan & Hefny, 2019; Valeri, 2022). The variables were the following: operating indicators, profitability, investment, funding sources, and use of financial information. The statistical software IBM SPSS Statistics 21 (64-bit version) was utilized for data analysis.

Research conducted in Poland by Napierala and Birdir (2017) evaluated the effect of using financial information on investment decisions within entities of a size similar to SMEs that were operating in the lodging sector. The findings of their study revealed a strong and positive correlation between the usage of financial information and investment outcomes, as supported by statistical evidence. Even in this study, the business performance variable exhibited the highest significance level in the created model (0.831), whereas the funding sources demonstrated the lowest significance level (0.402).

3.5. Index Verification

The model used in this study was described in such a way as to allow us to compare the level of interdependence between the independent factors and the dependent variable:

$$Inds_4 = b_1(Inds_2) + b_2(Inds_3) + b_3(Inds_5) + b_4(Inds_6) + b_5(Inds_7)$$

In the above equation, the business performance index is denoted as $Inds_4$ and is the dependent variable; the coefficient “ b_i ” represents the measure of the effect on the dependent variable when the independent variable experiences a one-unit change; the index denoted as $Inds_2$ represents the measure of utilization of financial information; $Inds_3$, on the other hand, pertains to the index measuring the funding sources; the investment index is denoted as $Inds_5$, while the index denoted as $Inds_6$ focuses on operating indicators; and finally, the profitability index is represented by $Inds_7$.

For the survey sections, indices were built based on the responses to the survey items on an ordinal scale associated with aforesaid sections, for each observation unit (hotel company) under study, considering the following expression:

$$Indsk_j = \frac{V_{max}(\sum_{i=1}^n x_{ij} - V_{minant})}{V_{maxant} - V_{minant}}$$

In the above equation, $k = 2-7$, and it corresponds to the section of the questionnaire for which the index is built; $Indsk_j$ is the value of the indicator corresponding to the observation unit j (that is, company j); the sum represents the total accumulation of points obtained on the first ordinal scale; V_{max} denotes the uppermost value on the revised scale (100); and

Vmaxant and Vminant refer to the highest and lowest values on the original ordinal scale, ranging from 1 to 5.

3.6. Independent Factors

Table 3 presents the variables of the business performance index applied in this study.

Table 3. Variables of business performance index.

Variables	Authors
Investment	Dimitrić et al. (2019).
Profitability	Caro et al. (2011); Carmona (2012); Agiomirgianakis et al. (2013)
Funding sources	Ristić and Komazec (2011); Vujović and Arsić (2018)
Operating indicators	Tang and Jang (2017); Lado et al. (2017); Dimitrić et al. (2019); Lima Santos et al. (2020b)
Financial information	Martín Granados and Mancilla Rendón (2010); Duraan et al. (2017); Gomez et al. (2017)

4. Results and Discussion

4.1. Company Profile

In this study, the average number of individuals employed in each selected hotel was 24. According to the survey results, 35.42% of the participants reported their involvement in serving the “international” market, which was identified as having the highest level of product variety. This was followed by the “national” market, mentioned by 31.25% of the respondents. Additionally, 18.75% of the participants indicated their engagement with the “state” market, while the “municipal” market was mentioned by 14.58% of the respondents. This referred to the origins of the guests they received: foreigners (international), those from the interior of the Mexican Republic (national), those from any part of Yucatán (state), and those from the municipality (local). Regarding the aggregate quantity of rooms accessible in the year 2022, a mean value of 39 was derived by this study. In 2022, the mean duration of visitors’ stays was two nights. Notably, 31% of the selected hotels had restaurants, and 17% offered laundry services. Moreover, 44% of the hotels were classified as “3-star” establishments, while the “4-star” category comprised 33% of the selected hotels, making these two classifications the most prevalent ones in Yucatán’s hotel industry. Concerning the utilization of surveys to ascertain the perceptions of these hotels’ clientele, it was found that 82% of the hotel enterprises already employed such measures and actively followed the necessary steps in this regard.

4.2. Measurement Model

Once built, the business performance index presented an average of 73.5 with a standard deviation of 19.8 points, i.e., the value of the index differed by 19.8 points on average among those who were surveyed. The histogram describing the distribution of the index values allowed the observation that the majority of hotels corresponded to high values, i.e., greater than 60 points.

4.3. Multiple Linear Regression (MLR)

To analyze the relationship between business performance (dependent variable) and the dimensions of interest (use of financial information, funding sources, investment, operating indicators, and profitability; independent variables), a multiple linear regression model was built using the forward method (Cerny & Kaiser, 1977; Montero, 2016). Thus, the model included only the independent variables whose regression coefficients were found to have statistical significance, which occurred in the case of the use of financial information

(p -value = 0.000) and the constant value (p -value = 0.007). The results given by the model are summarized below in Table 4, whose dependent variable is *Inds4* Business performance.

Table 4. Regression coefficients of the model and statistical significance.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Standard Error.	Beta			Lower Limit	Upper Limit	Tolerance	VIF
(Constant)	28.312	9.991		2.834	0.007	8.069	48.555		
Inds ₂ Financial information	0.593	0.119	0.635	4.996	0.000	0.352	0.833	1.000	1.000
Inds ₃ Funding sources	0.019	0.090	0.028	0.212	0.833	−0.164	0.202	0.930	1.075
Inds ₅ Investment	0.102	0.165	0.096	0.615	0.543	−0.235	0.438	0.681	1.469
Inds ₆ Operating indicators	−0.028	0.152	−0.045	−0.183	0.856	−0.337	0.282	0.269	3.713
Inds ₇ Profitability	0.137	0.140	0.222	0.979	0.335	−0.148	0.422	0.322	3.106

Figure 1 presents the multiple linear regression model corresponding to the analysis of the variables under study. From left to right, the values of the Pearson correlations between independent variables are presented (the correlation matrix of the model is attached), and on the right, the values of the non-standardized regression coefficients, associated with the independent variables, are given. In all the cases, the p -values associated with the provided values are presented in parentheses. The statistically significant regression coefficients are highlighted using a darker tone (in this case, the one associated with Indicator 2).

The considered model’s findings supported the following conclusion: there is a positive and statistically significant relationship between business performance and the consumption of financial information, as evidenced by the index.

$$y = 0.593 \text{ Inds}2 + 28.3$$

According to the model, for every 10-point increase in the index associated with the use of financial information, the business performance index increased on average by 5.93 points.

Notably, for this study’s index, the assumptions of linearity, independence, normality, and homoscedasticity were adequately met. Additionally, the Kolmogorov–Smirnov goodness-of-fit test, first proposed by Kolmogorov (1956), was utilized by this study to determine if the observed outcomes of the indicators would exhibit a normal distribution.

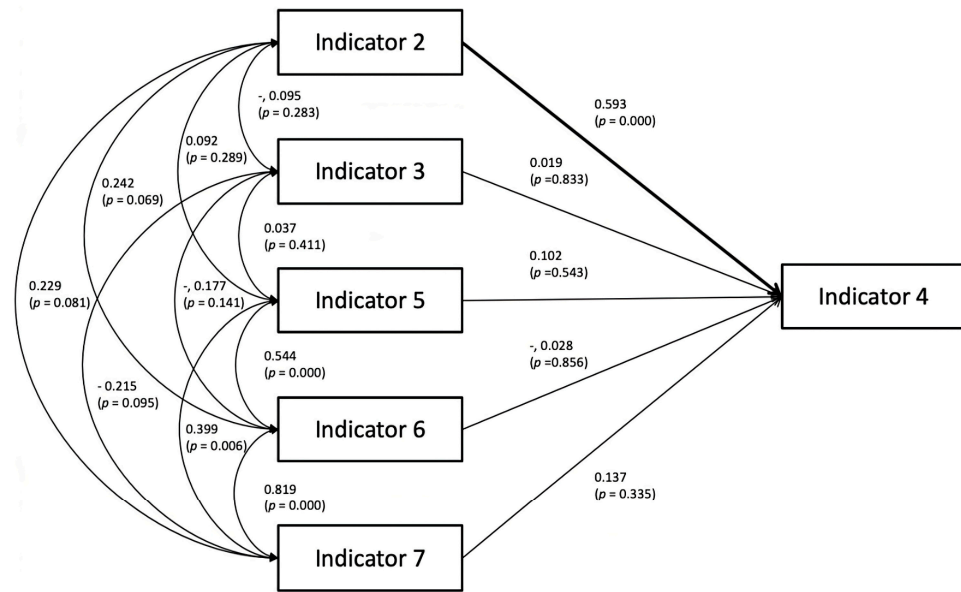


Figure 1. Multiple linear regression model.

5. Conclusions

Only a limited number of studies have examined the creation of an index in connection with a foundational theory, such as the theory of management control in the particular instance of this study. To fill this gap, this study examined whether factors such as financing sources, utilization of financial information, profitability, and operating indicators influence business performance using management control theory. Specifically, it explored how the generation of an index can serve as a technique for business performance evaluation (Barrows & Neely, 2012). A business performance index assists managers and/or owners of hotel SMEs in establishing goals and evaluating their progress. Additionally, it offers a dependable, accurate, and prompt foundation for decision-making processes and facilitates the identification of issues within a company’s strategy.

This study seeks to answer the following research questions: Does the use of operational management indicators improve the profitability of hotel SMEs? Do management indicators allow better investment and financing decision-making for hotel SMEs? Does the use of financial information allow for better decisions to be made by hotel SMEs? Does management control in hotel SMEs lead to better business performance?

In Mexico, companies mostly rely on competitiveness as their major indicator. However, the index developed by this study was founded on macroeconomic variables and operated on broad assumptions. Among the advantages of this index was that it was designed specifically for the hotel industry and focused on indicators that directly impact the business performance of hotel SMEs; hence, this index contributed to the existing body of research on the topic explored by this study (Barradas et al., 2021). In addition, one finds that entities associated with the secondary hotel sector (industry) have created indices that measure production, efficiency, effectiveness, and capacity of hotel businesses; these indicators specifically focus on industrial productivity. The hotel index developed by this study, for its part, considered indicators with a stronger financial basis, aligning with the findings of authors such as Ali et al. (2021).

In this context, according to this study’s findings, the use of instruments such as the balance sheet, income statement, cash flow statement, bank reconciliations, budgets, and cash flow should allow hotel entities to achieve effective and efficient decision-making. This study argues that addressing the above factors can help mitigate hotel businesses’ short-term financial planning problems, such as the following: (1) insufficient cash flow as a

result of inadequate planning, (2) excessive investment in inventories due to poor planning or overly cautious investments that do not generate the expected returns, either due to inadequate rotation or accumulation of obsolete assets, and (3) challenges in negotiating short-term financing, among others, as supported by previous studies (Lima Santos et al., 2020b; Rohvein et al., 2020). In the long term, these issues can lead to the following obstacles if they are left unaddressed: (1) unproductive or outdated investments; (2) debt repayment obligations that exceed a company's financial capacity; and (3) inadequate shareholder capital for business development, among other repercussions. These findings build upon the existing literature on the business performance of hotel SMEs (Khan & Hefny, 2019; Vivel-Búa & Lado-Sestayo, 2023).

In addition, the funding sources of hotels have a considerable impact on their success. The findings of this study indicate that the proprietors or administrators of hotel SMEs primarily rely on their personal or familial assets for their financial backing. In this regard, the sectors that follow, ranked from highest to lowest, are banks, financial leasing, deferred payment to suppliers, and crowdfunding. Paralleling the abovementioned findings, this study observes that the relationship between financial resources and business success is also influenced by external factors. This finding supports those of earlier research conducted by Caro et al. (2011), Carmona (2012), and Vujović and Arsić (2018).

To summarize, this study emphasizes the capacity of management control theory to utilize approaches regarding business performance evaluation. It offers several theoretical implications for the domain of hotel-related literature and research on concomitant management indicators, with a specific emphasis on enhancing the proficiency and efficacy of decision-makers in SMEs within a strategic sector of Mexico in the specific location of Yucatán. Out of the 96 hotel SMEs situated in Yucatán's capital, 58 have subsequently implemented the metrics outlined in this study to enhance their operations. In turn, they have received monthly rental payments. Moreover, out of the 43 hotel SMEs in Yucatán, 31 have already implemented these indicators. The following benefit has been acquired by these hotel businesses as of December 2024: the identification of the equilibrium points in the areas of rooms, food, and rental spaces. This, in turn, has empowered managers and/or owners to make more informed decisions regarding expenses such as salaries, fees, advertising, insurance, fuel, and stationery. Ultimately, they can ensure that every peso they have invested generates income. In addition, the practice of budgeting has prompted hotels to more closely assess their competitive standing and devise responses to their specific situations. Going forward, participating hotel businesses can assess the profitability of their products and services and successfully avoid any challenging financial situations by generating improved knowledge of their cash flow.

After analyzing and interpreting financial statements and their accompanying notes, the companies studied have made investment decisions focused on innovation. These include implementing artificial intelligence to evaluate guest data, predict guest preferences, and provide personalized services. They have also utilized the Internet of things to enhance security in hotels (by improving access control and surveillance). Additionally, they have leveraged big data to develop personalized marketing strategies based on the comprehensive analysis of client preferences and behavior, complementing the studies presented by Dimitrić et al. (2019) related to the investment and use of financial information.

These findings add to the existing literature on the business performance of hotel SMEs (Khanna & Sharma, 2023). The selected businesses' income statements indicate a 5% average growth in their profits from December 2022 to December 2023; this finding enriches the existing knowledge from prior studies conducted by authors such as Lima Santos et al. (2021).

Another indicator that has experienced positive effects is profitability. The selected hotel businesses' returns on investment in 2023 have shown an average increase of 2%, complementing the studies presented by [Tang and Jang \(2017\)](#). Additionally, there has been an improvement in their business performance, as illustrated by fewer difficulties in meeting obligations to third parties and the reinvestment of profits for future capitalization; these findings build upon the existing literature on the business performance of hotel SMEs ([Vivel-Búa & Lado-Sestayo, 2023](#)). The findings of this study have been reported to Yucatán's state government offices for financing purposes. Thus, the owners of the SMEs participating in this research have been offered loans with more favorable interest rates than those offered by banks. Additionally, they have been given longer payment terms to support the growth and stability of their companies; this measure adds to the relevant knowledge from prior studies conducted by authors such as [Lima Santos et al. \(2021\)](#).

The generation of a hotel's performance management index has a positive impact on its business performance and significantly contributes to hospitality research. It emphasizes the connection between the utilization of financial information, funding sources, investment, and business performance within the hospitality industry ([Ali et al., 2021](#)). The results of this study specifically support prior studies that have shown a positive correlation between management indicators and hotel business performance ([Noe et al., 2014](#)). In addition, the study conducted by [Zhang and Xie \(2023\)](#) reveals that the use of a business performance management index by hotels that incorporates financial variables has a substantial impact on the hotels' business performance. This finding enhances our understanding of how managers and/or owners of hospitality SMEs can effectively implement control management methods in the pursuit of improved business performance.

Furthermore, this study has found various managerial contributions to the hotel industry, specifically about the development and utilization of an index to enhance the business performance of hotel SMEs. These contributions are outlined below. Due to the strong and meaningful correlation between the utilization of financial information as a management indicator and business performance, hotel managers/owners should employ tools that enhance their businesses' financial information. These can include the implementation of software that integrates all aspects of the business, the adoption of Industry 4.0 practices, innovation, and the provision of training to develop a deeper comprehension of management analysis. The international hotel industry possesses distinct characteristics that set it apart from other economic sectors and which must be included in the financial information generated by this industry. Regarding the second indicator that pertains to the sources of funding, it is crucial for hotel businesses to thoroughly assess the actual necessity of the same. Funding carries inherent risks; however, a solid groundwork that encompasses predictions for debt repayment will positively impact the given company's growth. Incorporating circularity-based business models into hotel SMEs is crucial, as they can enable cost reductions, increased earnings, and reduced reliance on financing ([Lima Santos et al., 2021](#)). In this regard, one must also examine the integration of environmentally friendly initiatives that offer more extensive funding prospects and, in certain instances, cheaper lending rates compared to the market average, along with enhanced tax advantages ([Valeri, 2022](#)).

To be precise, this study has both theoretical and practical implications regarding the understanding and promotion of a business performance index's utilization in a region's hotel industry; it specifically responds to the needs presented by the Mexican Association of Hotels in Yucatán.

5.1. Limitations

Regarding this study's limitations, the specific environment in which the results can be implemented should be considered first. Another limitation is the absence of a clear vision and organizational culture in companies, which may have made it difficult to provide information to the interviewer in this study.

This research was conducted with administrators, managers, or owners of small- and medium-sized hotel companies in Yucatán, one of Mexico's 32 states. Consequently, caution must be taken when extrapolating to other states or entities in the same sector but with different size categories.

5.2. Future Research

Given the limitations mentioned above, which are inherent to any research, it is essential to replicate studies within the hotel sector in different geographical areas to allow for comparability. In addition, as this study considered management indicators as a dependent variable, future research could benefit from identifying complementary variables in various functional domains, facilitating the creation of a multidisciplinary management model. In other words, studies investigating additional characteristics and indicators related to the business performance of hotel SMEs in Yucatán or other regions are welcome. These indicators can contain variables including strategic management, technology, human capital, and other relevant elements.

Finally, the approach of this study could be expanded to other tourism subsectors to assess their performance and conduct comparative analyses of business performance.

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