The effectiveness of value- and calculation-based management controls in hotels

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ABSTRACT

This study investigates the effects of the adoption of management controls on hotel performance. It examines the effectiveness of value-based controls and the interplay between such controls and the commonly adopted calculation-based controls (i.e., planning, budgetary and compensation controls) when moderated by family involvement. This research relies on data gathered from a survey of hotels in Brazil and online hotel reviews. The hypotheses are tested via partial least squares-structural equation modeling, and fuzzy set qualitative comparative analysis is used to refine the quantitative analysis. Overall, the results highlight the importance of value-based controls for hotel performance and reveal that the positive association between value-based controls and hotel performance is greater than that between calculation-based controls and hotel performance. This association is more pronounced when family involvement is higher. Finally, results indicate that planning and budgetary controls are more effective forms of control in hotels with low and no family involvement.

Keywords: management control, hotel performance, structural equation modeling, family involvement, fsQCA

1. Introduction

Management controls consist of the practices, procedures, and systems used to monitor strategic progress and to ensure the execution of organizational objectives (Elbanna, 2016; Kallmuenzer and Peters, 2018). During the last decade, the literature on management control in the hospitality industry has made considerable progress toward understanding the effectiveness of the design and use of calculation-based controls (Sainaghi et al., 2017; Pavlatos, 2021). Researchers have observed that particular control configurations contribute to the achievement of strategic goals and the alignment of employees' behaviors with organizational objectives (Pavlatos, 2015). However, the previous research has only scarcely addressed the role of value-based controls in these organizations (e.g., Manoharan et al., 2014; Paul et al., 2015; Coelho et al., 2021). Value-based controls are recognized for communicating and reinforcing the purposes and directions of organizations (Merchant and Van der Stede, 2017). Through organizational beliefs and established written values and norms, such controls are used to influence and regulate the behavior of employees (Gerdin et al. 2019).

The literature in this area has been mostly silent about the interplay between these different and potentially complementary forms of management controls, which is surprising for two reasons. First, there is substantial evidence of the importance of cultural values and social interactions for the effective management of hospitality organizations (Tajeddini and Trueman, 2012; Kallmuenzer and Peters, 2018). Second, the combined effect of value- and calculation-based controls constitutes the building block of management control theory and plays a central motivational role in influencing employees' work attitudes and behaviors (Merchant and Van der Stede, 2017).

Aiming to fill this gap in the literature, this study investigates the effects of value-based controls on hotel performance and the interplay between those controls and the commonly adopted calculation-based controls (i.e., planning, budgetary and compensation controls). As the previous hospitality research has long recognized the contribution and dynamics of family influence on the effectiveness of management practices (Kallmuenzer and Peters, 2018), this research pays particular attention to the moderating role of family involvement in explaining the effects of management controls on hotel performance. Drawing on the hospitality literature, which has recognized family control and management as critical factors influencing prosocial

organizational behavior (Singal, 2014; Memili et al., 2018), and the management control literature, which has shown the lower effectiveness of formalized structures of control on family businesses (Quinn et al., 2018), this study examines the potential benefits of the adoption of value-based controls among hotels with higher levels of family involvement and the benefits of calculation-based forms of control among hotels with lower levels of family involvement.

The findings of this study rely on the analysis of data gathered from an original survey of 216 senior managers of hotels in Brazil and archival data obtained from online hotel reviews (OHRs). Partial least squares-structural equation modeling (PLS-SEM) was used to test hypotheses about the adoption of management controls and their effects on hotel performance. Fuzzy set qualitative comparative analysis (fsQCA) was employed to refine the findings of the PLS-SEM analysis. The results show that the positive effects of value-based controls on hotel performance are greater than those of planning, budgetary and compensation controls, and this effect is more significant for higher levels of family involvement. Although not hypothesized, the results also reveal that management controls are positively associated with managerial performance. The positive effects of calculation-based controls on managerial performance, however, do not seem to translate in the short term into hotel performance, as measured by OHRs. The PLS-SEM results show that budgetary controls are negatively associated with hotel performance, while planning and compensation controls are not significantly associated with hotel performance. fsQCA suggests particular configurations where value- and calculation-based controls contribute positively to hotel performance.

This article contributes to the hospitality and management control literature by extending the prior research on the consequences of management controls in the hospitality sector. Moreover, this work aims to provide more empirical evidence to the scarce literature that has explored the interwoven effects of value- and calculation-based modes of control on the effectiveness of hospitality organizations (e.g., Paul et al., 2015). This research shows how the combination of various management controls may affect hotel outcomes and, consequently, illustrates how hotels may benefit from the adoption of management controls in their attempts to be competitive. Additionally, this paper scrutinizes the influences of the theoretically meaningful, yet underresearched, moderating role of family involvement on the relationship between management controls and performance outcomes in the hospitality industry (Luo and

Chung, 2013). Finally, this work provides hotel managers with guidance for the adoption of management control configurations that are likely to drive organizational performance.

2. Theoretical Framework and Hypotheses Development

2.1 . *Management controls in hospitality*

The research on management control in hospitality has developed considerably in the last three decades (Sainaghi et al., 2017). The prior literature has recognized that management controls can play an important role in the service industry, providing useful information for decision making and influencing people to achieve organizational goals (Mazmanian and Beckman, 2018; Fatima and Elbanna, 2020). Underpinning these studies is the assumption that organizations strive to obtain maximum effort from employees. By linking behaviors to targets and, consequently, establishing accountability for variations in performance, management controls foster behaviors that are congruent with the desired organizational outcomes. Hence, such controls enable top managers to exert direct and indirect control over other organizational participants.

Within the prior literature on management control in the hospitality industry, particular interest has been paid to studying the effectiveness of performance measurement and its various designs, including both financial- and nonfinancial-based designs (Bortoluzzi et al., 2020). The hospitality literature has shown that managers adopt several forms of management control to ensure the achievement of strategic goals and the congruence of employees' behaviors with organizational objectives (Pavlatos, 2015). In this vein, Sainaghi et al. (2017) conducted a comprehensive analysis of the literature on performance measurement in hospitality showing the diffusion of these practices and their importance in the overall performance of organizations in the sector. Additionally, the prior research has shown that the fragmented and widespread hospitality sector tends to adopt traditional management controls (e.g., planning, budgetary, and compensation controls) more widely than recently developed tools (Pavlatos and Paggios, 2009; Elbanna and Elsharnouby, 2018).

Planning controls (i.e., operational and strategic planning controls) are a set of short- and long-term practices that establish the objectives of the functional areas of an organization, the

coordination of goals and the direction of the efforts of organizational participants toward achieving organizational objectives (Akroyd et al., 2019). Hence, planning controls define, determine and guide the implementation of strategic initiatives. In hotels, planning controls are considered essential management tools that aim to guide and ensure that the appropriate resources are available at the right time and place for the achievement of objectives (Phillips and Moutinho, 2014; Parker and Chung, 2018). Managers use strategic objectives as standards, measure the performance of strategic plans, compare that performance to those standards, and report any undesirable variations to take relevant corrective actions when necessary (Elbanna, 2016; Melgarejo et al., 2021).

Budgetary controls are understood as a combination of a set of information and the processes that translate the organization's plans, facilitating the coordination and communication of strategies as well as employee commitment (Uyar and Bilgin, 2011; King and Clarkson, 2015; Arnold and Artz, 2019). In hotels, budgetary controls allow managers to focus their attention on operational activities, establish priorities, review current plans, allocate resources and achieve objectives (Steed and Gu, 2009; Frow et al., 2010). Budgetary controls are also important monitoring and incentive mechanisms for managers as they are commonly used for performance evaluation (Cruz, 2007; Arnold and Artz, 2019). The ritual of quantification through budgetary controls enhances employees' commitment to the achievement of organizational goals, motivating their action and driving continuous organizational growth (Mazmanian and Beckman, 2018). Although there are similarities among the various definitions of budgetary and planning controls (Merchant and Van der Stede, 2017), researchers have distinguished those controls in terms of their reliance on financial information (Malmi and Brown, 2008). It is argued that budgetary controls rely more heavily on financial information than planning controls.

Compensation controls are designed and used to motivate and increase the performance of organizational participants by attaching rewards to control the direction, duration, and intensity of effort (Malmi and Brown, 2008; King and Clarkson, 2015). In the hospitality literature, these controls appear in different forms including salaries, bonuses based on performance, and professional allowances. Studies have shown that compensation is a crucial factor in driving job satisfaction and motivating organizational citizenship behavior in hotels (Pan, 2015).

Despite the overconcentration of studies on the hierarchical structures of authority, the literature on management control in the hospitality industry has also recognized the role of

interpersonal influence and other forms of control (Tajeddini and Trueman, 2012). For instance, Kallmuenzer and Peters (2018) suggested that the effectiveness of control mechanisms in hospitality firms, compared to nonhospitality firms, may be more influenced by cultural, regional and social contexts. To a great extent, it has been argued that hospitality firms and, most specifically, hotels have strong regional embeddedness and social identification, and their values and management practices are shaped by the local culture (Peters and Kallmuenzer, 2015). The strong identification of hospitality firms with the local community generates special attention to value-based controls (Ertuna et al., 2019). Although the previous research has suggested the importance of value-based controls, the influence of such controls on the effectiveness of hospitality organizations has been studied only marginally (Coelho et al., 2021). Value-based controls represent the beliefs and norms that guide the behavior of organizational participants and, combined with other forms of control, serve as a basis for the development of various actions that lead to differences in the services provided (Tajeddini and Trueman, 2012).

2.2. Family involvement in hospitality

Family involvement refers to situations in which a family has substantial control and managerial presence in an organization's daily operation (Powell and Eddleston, 2017). Family involvement is present in a very significant portion of organizations in the hospitality sector (IFB Research Foundation, 2019; Scholl-Grissemann et al., 2021). In this sector, many organizations are managed with the intention of shaping and pursuing the business vision maintained by a dominant coalition controlled by one or a few families, which is potentially sustainable between generations (Sestu and Majocchi, 2020).

Hospitality studies have shown that a higher level of family involvement is associated with the implementation of practices that recognize the importance of employees for organizational success. Family hotels are known for building a motivated and committed workforce (Memili et al., 2018). The research has shown that family hotels foster an entrepreneurial spirit (Peters and Kallmuenzer, 2015) and make efforts to improve the organizational climate (Paek et al., 2013), employee satisfaction (Pan, 2015), and performance (Kallmuenzer and Peters, 2018). Continuous family involvement is associated with increasing relationships between hotels and important stakeholders such as members of the local community. Family-involved hotels are particularly

concerned with their context and exercise stewardship toward the communities in which they operate (Carlsen et al., 2001), for instance, by investing more resources in corporate social responsibility initiatives compared to nonfamily hotels (Singal, 2014). This study aims to examine the impact of family involvement on the relationship between different types of value- and calculation-based management controls and performance.

According to Quinn et al. (2018), a family involvement culture, commonly characterized by stewardship, reflects an organizational environment based on trust, altruism, and relational rather than purely financial contracts. In a context in which the board of directors and other top management positions are held by family members, flexible and less complex governance structures are common (Peters and Kallmuenzer, 2015). These structures allow greater professional autonomy and discretion in decision making (Senftlechner and Hiebl, 2015). Therefore, in environments with higher family involvement, calculation-based controls may be less effective mechanisms for motivating employees' behaviors compared to more flexible forms of control such as value-based controls.

2.3. The effectiveness of value- and calculation-based controls in hospitality

As mentioned above, management controls have been widely adopted in the hospitality sector (Sainaghi et al., 2017). The previous research has indicated that the adoption of management controls supports the implementation of business strategies, facilitates organizational communication and coordination, aligns individual and organizational goals (Elbanna, 2016, Bortoluzzi et al., 2020), and increases employees' job satisfaction (Pan, 2015) and organizational performance (Phillips and Louvieris, 2005).

However, the positive contribution of management controls to hospitality organizations is challenged by the competitive and turbulent environment that characterizes that industry (Phillips and Moutinho, 2014; Kallmuenzer and Peters, 2018; Pavlatos, 2021). The complexity surrounding predictions and quantifications in volatile industries has been recognized as researchers have acknowledged the risks of ossification and rigidity brought about by the use of management controls (Bisbe and Malagueño, 2012; Majid et al., 2019). More specifically, formal calculation-based controls are based on pre-established contextual assumptions and performance standards that are not easily adjusted to environmental changes. Calculation-based

controls may become rigid and static and exacerbate myopic behaviors in which organizational participants give up on tasks that will have a greater impact on organizational performance to comply with narrowly defined targets (Bisbe and Malagueño, 2012). Hence, calculation-based controls can potentially restrict firms' response to specific changing and unpredictable market and customer demands. The previous research has indicated that the effectiveness of rigid, formalized and bureaucratic structures of control may be undermined in the hospitality industry as goals and procedures require constant adaptation (Raub, 2008). This stream of literature argues that flexibility rather than standardization is the key to meeting highly differentiated customer demands. Accordingly, Sharma (2002) indicated that when an environment is considered unpredictable and highly competitive, budgetary controls are used less extensively for communication, performance evaluation and control. However, while some studies have identified the need for greater management control flexibility in the hospitality industry (Majid et al., 2019), other studies have indicated that management controls that rely on nonfinancial metrics, such as value-based controls, are more impactful in this context (Parker and Chung, 2018).

By emphasizing value-based controls, managers communicate and systematically enforce a firm's core values and delimitated domains of acceptable and expected behaviors (Gerdin et al., 2019). These controls are implemented via socialization and encourage a sense of organizational identification among employees. The diffusion and implementation of values could involve a variety of information mechanisms that include mission statements, codes of conduct, tone at the top, e-mails, (in)formal presentations, and social events. These mechanisms allow interactions that encourage employees to share values and norms, creating an environment in which they can monitor and influence each other's behaviors (Bisbe and Malagueño, 2015; Pfister and Lukka, 2019). In this vein, Manoharan et al. (2014) showed that hotel managers in Australia use informal identity-conscious practices, such as informal discussions about cross-cultural management at weekly meetings, to deal with ethnically diverse employees, with a potential impact on employees' motivation and customer satisfaction.

The effectiveness of internal managerial practices contributes to customer satisfaction (Claver-Cortés et al., 2007; Pelsmacker et al., 2018; Pertusa-Ortega et al., 2021). Consumers' opinions about the services provided by hotels reach managers through hotel evaluations (i.e., OHRs). An OHR, in addition to indicating the level of consumer satisfaction and dissatisfaction

(Phillips et al., 2017), also represents the hotel's performance from an external perspective (Mellinas et al., 2019). OHRs are important factors for consumers in choosing a hotel and thus become a competitive advantage, allowing the hotel to achieve higher levels of occupancy and room reservations, improving the perception of trust in the hotel, and increasing hotel profitability (Papathanassis and Knolle, 2011; Anagnostopoulou et al., 2020; Palese et al., 2021). Customers' opinions and ratings are quickly diffused worldwide and, in many cases, require hotels to take action, reallocating resources, changing pre-established processes and procedures and adjusting to unexpected demands. Value-based controls provide organizational flexibility and direction, allowing employees to adapt quickly to new priorities and guiding their behavior toward organizational objectives.

In view of the evidence presented, it is expected that the positive effects of value-based control on hotel performance are greater than those of calculation-based controls. More specifically, it is argued that value-based controls comprise more effective forms of management control, presenting a stronger relationship with hotel performance than those of planning, budgetary and compensation controls, which are based on rigid, precise and predefined goals. To explore this relationship, the following research hypotheses are proposed:

H1. The positive effects of value-based controls on hotel performance are greater than those of calculation-based controls (H1a: planning controls, H1b: budgetary controls and H1c: compensation controls).

2.4. The moderating role of family involvement

Family involvement is a characteristic that strongly influences hotel objectives and strategies and explains employees' responses to and attitudes toward management practices (Kallmuenzer and Peters, 2018; Kim and Jang, 2018). This research argues that the involvement of family members in the control and management of hotels amplifies and attenuates the effectiveness of different management controls.

Although the hospitality sector, in general, is known for its social integration with regional and local communities, prior studies have recognized that stronger ties between firms and communities are observed when family members are involved in businesses together (Niehm et

al., 2008; Peters and Kallmuenzer, 2015). Family-involved hotels are typically deeply rooted in their communities and are known for their role as cultural intermediaries, acting as bridges between tourists and local communities, with a special focus on the sustainability of the region (Gomez-Conde et al., 2019; González-Rodríguez et al., 2019). Family-involved hotels strive to increase their reputation as their family names are associated with their businesses (Kashmiri and Mahajan, 2010; Scholl-Grissemann et al., 2021). The social and regional embeddedness of family-involved firms (Kallmuenzer and Peters, 2018) and the supportive environment created by family-member managers (Powell and Eddleston, 2017) are reflected in employees' positive attitudes and consequent prosocial organizational citizenship behaviors. Additionally, the commonly found nonprofessional relationships between family and nonfamily employees lead to higher levels of organizational identification and, consequently, employee retention (Vardaman et al., 2018).

Family involvement in management decreases monitoring costs and information asymmetry, alleviating pressures in terms of compensation requirements (Neckebrouck et al., 2018). In the context of high family involvement, as suggested in the previous research (Kallmuenzer and Peters, 2018), it is plausible to expect less bureaucratic structures of leadership and control to become more effective means of aligning individual and organizational goals. Hence, management controls that are based on shared traditions, norms, beliefs, values, ideologies, and attitudes (Malmi and Brown, 2008) and that are manifested in social arrangements (e.g., clothing and vocabulary) and social interactions shape the culture and behavior of hotel staff, strengthening family bonds and guiding behavior. Recent studies suggest that value-based controls involve greater information exchange, which results in more flexibility in applying knowledge (Coelho et al., 2021). These control mechanisms are pervasive, entrenched within organizational members and more impactful in the context of family-involved organizations (Einhorn et al., 2021). The imprinting of founders' values and the creation of emotional ties among firms, families and employees (Akroyd and Kober, 2020) may amplify the effect of value-based controls on the performance of family-involved hotels (Zheng and Tsai, 2019). Based on this discussion, the following hypothesis is proposed:

H2: *Family involvement positively moderates the effect of value-based controls on hotel performance.*

Weaker relational ties between top managers of nonfamily hotels and the community commonly drive lower levels of trust, commitment, and reciprocity among employees when compared to family-involved hotels (Niehm et al., 2008). Low or no family involvement in hotels usually reflects lower levels of socially responsible behavior toward local communities. The higher degree of professionalism and lower personal involvement of nonfamily managers in the daily operations of organizations encourage the managers of these hotels to rely on calculations to monitor and coordinate the achievement of pre-established goals. As a result, in nonfamily hotels, calculation-based controls, compared to value-based controls, are expected to be more effective approaches to incentivizing employees' desirable behaviors and, consequently, higher performance. Prior research has indicated that calculation-based controls can easily coordinate and evaluate the performance of geographically dispersed employees (Sharma, 2002), supporting organizations in meeting financial and operational targets such as predicted room and occupancy rates (Phillips and Louvieris, 2005).

As family involvement increases, calculation-based controls become less relevant control mechanisms. When family managers are involved in governance, the need for monitoring decreases according to the perception of low or even an absence of agency conflicts (Songini and Gnan, 2015) and consequently low agency costs, which disincentivize the use of management practices such as planning and budgetary controls (Prencipe et al., 2014; Songini and Gnan, 2015). Firms with high family involvement are less likely to use frequently sophisticated management accounting practices (Heinicke, 2018), as the presence of family members seems to be sufficient for monitoring results and coordinating operations. Nevertheless, the current literature does not provide guidance on how family involvement explains the contribution of calculation-based controls to the achievement of strategic objectives. More specifically, it is unclear how family involvement affects the effectiveness of different quantification rituals (Prencipe et al., 2014).

Although planning, budgetary and compensation controls are used to guide employees and communicate organizational objectives and strategies (Jones, 2008; Phillips and Moutinho, 2014), the nature of these management controls, when implemented, can be very different, especially in family firms (Prencipe et al., 2014; Kapiyangoda and Gooneratne, 2021). Planning controls are considered fundamental for hotel management, as top management teams generally

establish strategic actions and cascade them down to intermediate managers, who then execute them through short-term actions (King and Clarkson, 2015). Previous research has shown that planning controls are particularly important when governance becomes more complex as firms increase in size and decentralize their management structures (McManus, 2013; Pavlatos, 2015), which means that in family-involved hotels characterized by lower bureaucratic structure, the frequency of use of planning controls may decrease (Speckbacher and Wentges, 2012; Kapiyangoda and Gooneratne, 2021) and thereby have less impact on hotel performance. Budgetary controls have been recognized for their broader functional scope compared to planning controls. The literature has noted that organizations use budgetary controls for several different functions including communicating objectives, controlling courses of action, evaluating performance and motivating employees (Jones, 2008; Arnold and Artz, 2019). These managerial, strategic and administrative functions play a pivotal role in attending to organizational goals. However, in organizations with high family involvement in management, many procedures related to communicating targets, coordinating actions and controlling behavior are performed in informal ways, which may decrease the effectiveness of formal strategic and operational planning and budgetary controls (Speckbacher and Wentges, 2012). Finally, compensation controls promote employee behavioral congruence with organizational objectives through extrinsic financial rewards such as bonuses, variable remuneration and promotions (Merchant and Van der Stede, 2017). The effectiveness of such incentive systems becomes weaker as the degree of family involvement increases (Songini and Gnan, 2015).

In summary, the prior studies indicate that calculation-based controls are less effective in family-involved firms, where high levels of employee-organization identification are present and employees engage in cooperative and unrewarded citizenship behaviors (Neckebrouck et al., 2018). The implementation of planning, budgetary and compensation controls benefits family-involved firms' performance less than nonfamily firms' performance (Songini and Gnan, 2015). Following the above arguments and considering the differences among the calculation-based controls examined in this study, predictions about the moderating effects of family involvement on the relationship between calculation-based controls and hotel performance are proposed.

H3: Family involvement negatively moderates the effects of calculative controls (H3a: planning controls, H3b: budgetary controls, H3c: compensation controls) on hotel performance.

3. Research Methods

3.1. Sample selection and data collection

The target population of this research consists of hotels in Brazil that are registered in the Brazilian national hospitality system (CADASTUR) (Ministério do Turismo, 2019). To select the firms to be surveyed, two criteria were applied: i) the firms had to be classified in the register as flat, aparthotel, hotel, farm hotel, historic hotel or resort (leisure hotel); and ii) the firms had to offer more than 100 rooms or units. According to these criteria, 1,120 large hotels were selected. The choice of this size was partly due to the greater probability of such hotels presenting structured management controls (Gomez-Conde et al., 2019).

The data were collected in two stages. The first step involved data collection with the application of a questionnaire. An initial version of the questionnaire was developed on the basis of the literature on management controls (Malmi and Brown, 2008; King and Clarkson, 2015; Bedford et al., 2016). The questionnaire was administered in Portuguese. To check the suitability of the instrument, a pretest was carried out with doctoral students and scholars with professional and academic experience in management and hospitality.

Some procedures were employed during the data collection process to improve the response rate. These included a telephone call to inform potential participants of the survey followed by an email containing a formal letter presenting the research and a link to the online survey. The questionnaires were sent to the chief executive officer or another member of the top management team of each hotel in the sample. The survey was conducted during the period from August to December 2019. After this procedure, a total of 225 questionnaires were obtained (20% response rate). This response rate is comparable to studies in hospitality and management control (e.g., King and Clarkson, 2015; Gomez-Conde et al., 2019; Bortoluzzi et al., 2020).

A second stage of archival data collection was carried out. From the online review sites TripAdvisor and Trivago, the OHRs of the sample hotels were obtained. Nine hotels that responded to the questionnaire had to be excluded because of incomplete OHR data. The final sample used for hypothesis testing contained 216 hotels. The investigated hotels were distributed geographically across the 25 Brazilian states. On average, the hotels had operated for 19 years

(max. 96 years) and had 180 employees (max. 3,200 employees). The respondents were mostly female (52%) and were on average 39 years old.

To assess potential response bias in the sample, the mean differences between early and late respondents were compared. T-tests applied to the main constructs in the model did not reveal significant differences except for variable planning controls (5.55 vs. 6.23, $p<0.5$).

3.2.Variable measurement

3.2.1. Independent variables

All the management control variables are based on instruments previously developed by Malmi and Brown (2008) and King and Clarkson (2015), measured on a seven-point Likert scale, with two opposed statements as anchors (1="strongly disagree" to 7="strongly agree"). Value-based control was captured by five questions about the presence of written vision/mission, code of conduct, adaptation skills, social activities, and consideration of values and beliefs during recruitment. Planning control was measured by nine questions about the presence of long-term plans, operational action plans, participation in long-term and action plans, identification of key success factors, consideration for the long-term plans on the management process and daily achievements, and communication of operational plans. Budgetary control was captured by four questions about the presence of formal budgets, awareness of the budgeting process, systematic use of budgets, and measures to meet budgets. Compensation control was captured by five questions about the presence of compensation controls based on financial rewards, the association of compensation with salary, the achievement of goals, failure and the evaluation of performance.

3.2.2. Dependent variables

The hotel performance construct was evaluated through OHRs, which are the result of evaluations carried out by customers. OHRs are widely used in hospitality studies to capture hotel performance (Pelsmacker et al., 2018; Mellinas et al., 2019). Five items, of which two were related to the TripAdvisor website (general score and service) and three were related to the Trivago website (general score, comfort and service), were used. Items related to location,

facilities, or value for money (e.g., location, value, rooms, and facilities) were not included in the analyses as they were considered not to be directly affected by routine management decisions.

In addition to hotel performance, managerial performance was also captured. Managerial performance is conceptualized as the action of executing a set of managerial functions in an appropriate or successful manner. It was measured through eight questions (see Hall, 2008). The original instrument used in the survey included nine items. One of those items asked about the planning achievements of the manager. That item was excluded because planning is considered an antecedent of performance rather than a constituent of it. The eight items were measures ranked on a seven-point Likert scale (1="well below average" to 7="well above average").

3.2.3. Moderating variable

Following previous studies (e.g., Powell and Eddleston, 2017), family involvement captures control (i.e., ownership) and the presence of family members in daily management. In addition to family ownership, the presence of family members in operational management is necessary to ensure that the vision of the organization is shaped and pursued. A two-step procedure was employed to measure the level of family involvement in hotels. First, the respondents were asked in the questionnaire to indicate if the hotels for which they worked were controlled by a family. Second, the hotels with personnel who indicated that they were controlled by a family were contacted by telephone. In this second contact, the hotels were asked if members of the controlling family were involved in daily management activities. Subsequently, a continuous single item was created in which 0 represented nonfamily hotels, 1 represented a low level of family involvement and 2 represented a high level of family involvement.

3.2.4. Control variables

Hotel size and type were included in the models as control variables. Larger hotels tend to outperform smaller ones (Claver-Cortés et al., 2007) and thus are subject to increased pressures related to customer reviews (Phillips et al., 2017). The size of a hotel is measured by the number of employees. The performance of chain hotels may be affected by other factors beyond the direct control of the management team (Pelsmacker et al., 2018). The type of hotel was measured with a dummy variable, where 0 represented independent hotels and 1 represented chain hotels.

4. Data analysis

To analyze the data, PLS-SEM was used. The proposed model examined the direct effect of value-based controls and other calculation-based controls on hotel performance and the moderation of family involvement.

The operationalization of the PLS approach involved an examination of the quality of the measurement model and the evaluation of the structural model. In the first stage, a PLS algorithm was calculated whereas in the second stage, bootstrapping and blindfolding were examined. Similar to ordinary least squares regressions, it is a common practice to include moderators in PLS path models (Hair et al., 2016); in the current study, the calculation method was based on a two-stage approach. A complementary analysis through the fsQCA technique was used to assess the combination of management controls that leads to high hotel performance. As pointed out in the literature, the mixed approach of combining PLS regression and fsQCA provides details into the complex relationship among antecedents and outcome variables (Rasoolimanesh et al., 2021). The complementary use of fsQCA to enrich PLS-SEM analysis has been common in business studies (Kaya et al., 2020) and has recently been employed in the hospitality and tourism research (Elbaz et al., 2018; Bortoluzzi et al., 2020; Rasoolimanesh et al., 2021).

4.1.Measurement model quality

To evaluate the measurement model, the reliability and validity of the constructs were examined (Hair et al., 2016). Reliability was assessed by Cronbach's alpha and composite reliability (CR) indexes. Convergent validity was assessed by the average variance extracted (AVE), and discriminant validity was assessed by the square roots of the AVE and the heterotrait-monotrait (HTMT) ratio. Collinearity issues were also checked based on the variance inflation factors (VIFs) for all constructs.

The factorial loads are greater than 0.6, and Cronbach's alpha is higher than the threshold of 0.7, showing adequate construct reliability. The composite reliability shown in Table 1 confirms this adequate reliability. An AVE above 0.5 indicates satisfactory convergent validity.

Table 1 shows that the square roots of the AVE are higher than the correlations among other constructs, hence indicating adequate discriminant validity. The HTMT ratio is below the threshold of 0.85, reinforcing satisfactory discriminant validity. The VIFs for all constructs are below 5.00, indicating that collinearity is not a significant concern in the measurement model (Hair et al., 2016).

Common method bias was evaluated through Harman's single-factor test and a marker variable. First, Harman's single-factor test showed a cumulative variance of 68.98%, while the first factor explained 24.93% (first factor <0.5). Second, a marker variable was used to assess method bias (Lindell and Whitney 2001). The marker variable (self-motivation) was included in the PLS model and linked to all constructs. Thus, the correlations with value-based controls (-0.004), planning controls (0.139), budgetary controls (0.065), compensation controls (-0.117), family involvement (-0.167), managerial performance (0.161) and hotel performance (-0.060) were low and insignificant. The results indicate that common method bias is not a potential threat as the average of these correlations squared was 0.014 (Lindell and Whitney, 2001; Kim et al., 2020).

Table 1. Reliability, correlations, and square root of AVE and HTMT ratio.

	AVE	CR	1	2	3	4	5	6	7	8	9
1. Value-based controls	0.648	0.847	**0.805**	0.522	0.402	0.121	0.474	0.129	0.196	0.056	0.056
2. Planning controls	0.583	0.918	0.428	**0.764**	0.410	0.377	0.500	0.120	0.267	0.088	0.065
3. Budgetary controls	0.631	0.837	0.282	0.328	**0.794**	0.255	0.553	0.152	0.047	0.076	0.168
4. Compensation controls	0.649	0.902	0.078	0.337	0.194	**0.806**	0.206	0.075	0.076	0.184	0.053
5. Managerial performance	0.552	0.907	0.394	0.470	0.453	0.208	**0.743**	0.078	0.156	0.168	0.054
6. Hotel performance	0.658	0.905	0.132	-0.046	-0.123	0.002	-0.033	**0.811**	0.054	0.090	0.122
7. Family involvement	-	-	-0.171	-0.259	-0.043	-0.075	-0.149	0.042	-	0.063	0.104
8. Hotel size	-	-	0.029	-0.073	0.019	-0.180	-0.167	0.070	0.063	-	0.121
9. Hotel type	-	-	0.047	0.031	0.133	-0.048	0.035	0.106	0.104	0.121	-

Note: Diagonal reports the square root of AVE. Values below the diagonal indicate interconstruct correlations. The values above the diagonal indicate HTMT ratio.

4.2.Structural model and hypothesis testing

Table 2 depicts the results of the structural model assessment. For hypothesis testing, this study used the bootstrap technique. The results (model 1) show that in the hotel industry, the effects of value-based controls on hotel performance are greater than those of planning,

554 budgetary and compensation controls (value-based controls→hotel performance, β=0.215,
555 $p<0.05$; planning controls→hotel performance, β=-0.095, $p>0.10$; budgetary controls→hotel
556 performance, β=-0.184, $p<0.05$; and compensation controls→hotel performance, β=0.070,
557 $p>0.10$). These results support H1 (H1a, H1b, H1c), which predicts more pronounced effects of
558 value-based controls in the hotel industry compared to other calculation-based controls.

559 This study also assessed the moderating role of family involvement in the relationship
560 between value-based controls and hotel performance. The result in Table 2 (model 2) shows that
561 family involvement amplifies the effects of value-based controls on hotel performance (value-
562 based controls x family involvement →hotel performance, β=0.126, $p<0.05$), supporting H2.

563 Finally, the results in Table 2 (model 2) indicate that family involvement negatively
564 moderates the effects of planning and budgetary controls on hotel performance (planning
565 controls x family involvement→hotel performance, β=-0.131, $p<0.10$; budgetary controls x
566 family involvement→hotel performance, β=-0.129, $p<0.05$), indicating that these calculation-
567 based management controls contribute less to the performance of family-owned hotels than to
568 the performance of nonfamily-owned hotels. Hence, H3a and H3b are supported. Otherwise, the
569 result shows that family involvement positively moderates the effect of compensation controls on
570 hotel performance (compensation controls x family ownership→ hotel performance, β=0.110,
571 $p<0.10$). Thus, H3c is not supported.

572 Additionally, the results (model 1) indicate that value- and calculation-based controls
573 benefit managerial performance. Thus, value-based controls positively influence managerial
574 performance (value-based controls→managerial performance, β=0.188, $p<0.10$), and planning
575 and budgetary controls are positively related to managerial performance (planning
576 controls→managerial performance, β=0.277, $p<0.01$; budgetary controls→managerial
577 performance, β=0.301, $p<0.05$). These results suggest that value-based, planning and budgetary
578 controls play a pivotal role in managers' results.
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586 Table 2. PLS structural model results: path coefficients, p-values and R^2 values

	Model 1		Model 2	
	Managerial performance	Hotel performance	Managerial performance	Hotel performance
	β(p-value)	β (p-value)	β (p-value)	β (p-value)
Value-based controls	0.188(0.089)*	0.215(0.016)**	0.188(0.090)*	0.156(0.088)*
Planning controls	0.277(0.006)***	-0.095(0.180)	0.277(0.005)***	-0.011(0.459)
Budgetary controls	0.301(0.031)**	-0.184(0.041)**	0.301(0.027)**	-0.157(0.062)*
Compensation controls	0.042(0.625)	0.070(0.207)	0.042(0.642)	0.030(0.365)
Managerial performance		0.006(0.948)		-0.040(0.679)
Family involvement		0.037 (0.634)		0.031(0.687)
Value-based controls x Family involvement				0.126(0.044)**
Planning controls x Family involvement				-0.131(0.063)*
Budgetary controls x Family involvement				-0.129(0.049)**
Compensation controls x Family involvement				0.110(0.062)*
Hotel size		0.058(0.357)		0.062 (0.322)
Hotel type		0.115(0.096)*		0.126(0.062)*
R^2	0.349	0.073	0.349	0.113
R^2 adj.	0.337	0.037	0.337	0.061
Chi-square	0.152	0.024	0.152	0.046
Max. VIF	1.435	1.612	1.435	1.865

587 Note: Full sample. Standardized coefficients are presented. ***, ** and * denote 1%, 5% and 10%
588 significance levels (one-tailed when the coefficient sign is predicted, two-tailed otherwise), respectively.
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591 Fig. 1 illustrates the results associated with the moderating effect of family involvement on
592 the relationship between management controls and hotel performance.

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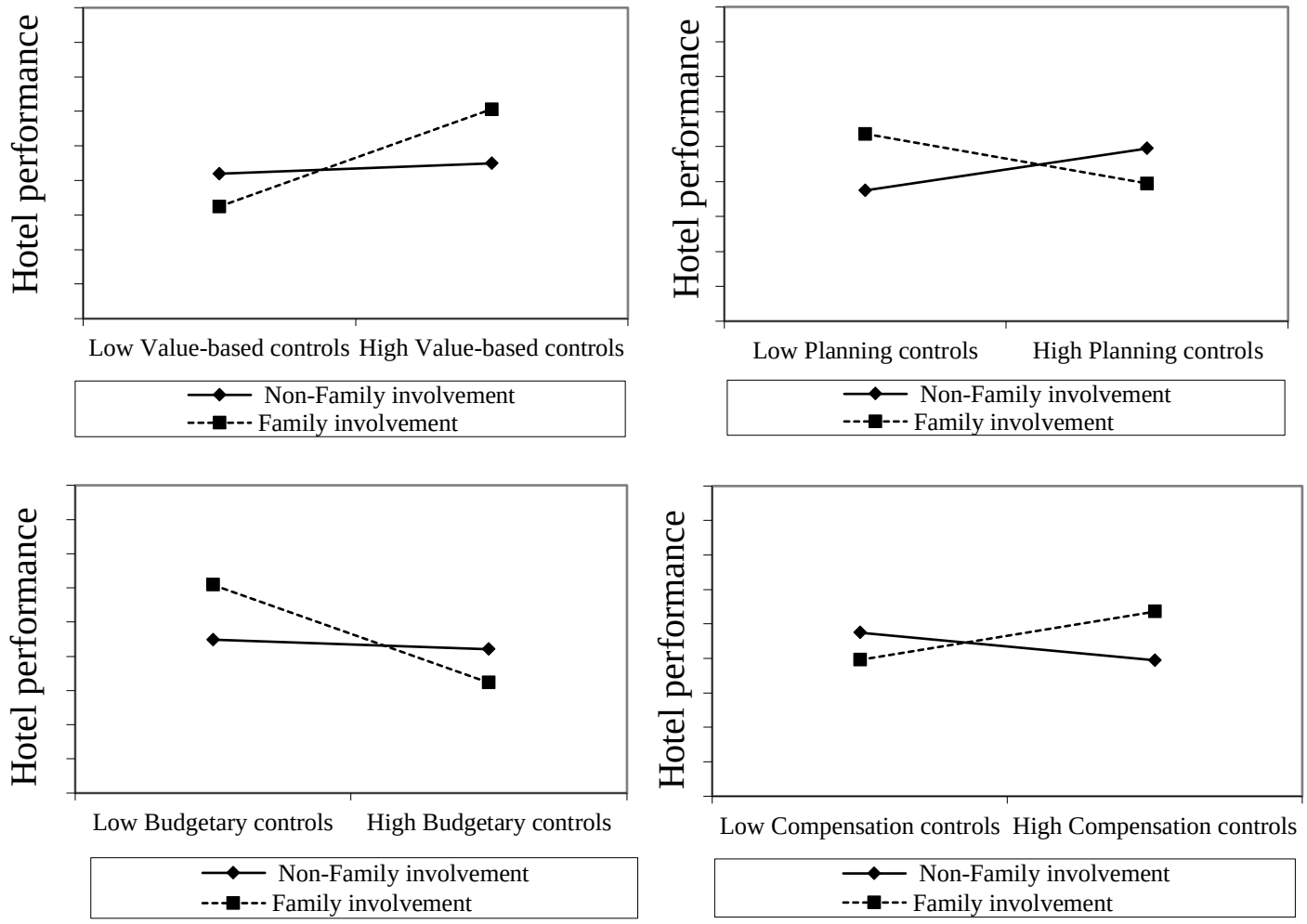

596 Fig. 1. The moderating effect of family involvement

4.3.Further analysis

A configuration approach using fsQCA was employed to extend the analysis of how the simultaneous combination of management controls affects hotel performance. fsQCA combines Boolean algebra and fuzzy set theory, so it establishes possible configurations that allow for the identification of complementarities between the modeled variables (Ragin, 2009). According to the concept of equifinality, it is possible to observe different configurations that are equally effective. The use of fsQCA to complement the PLS regression is relevant because it deepens the analysis of the data and establishes patterns within sets, which are difficult to predict (Rasoolimanesh et al., 2021).

For the operationalization of the fsQCA, the data from the survey (i.e., seven-point Likert scale) were calibrated in three anchors: full nonmembership (1), crossover point (4) and full membership (7) for value-based and compensation controls and full nonmembership (4), crossover point (5.5) and full membership (7) for planning and budgetary controls and managerial performance, following the calibration procedures done by Bedford et al. (2016). The variable family involvement was calibrated to 0 for full nonmembership, 1 for crossover point and 2 for full membership. A percentile approach was applied for archival data in which the 5^{th}, 50^{th} and 95^{th} percentiles defined full nonmembership, crossover point and full membership, respectively (Kraus et al., 2016).

The second step of the analysis was to individually identify the antecedents that are necessary parts of the solutions that explain hotel performance. This analysis shows especially that value-based controls are “always necessary” conditions, as consistency is highly above 0.90 (0.96). Similarly, compensation controls are also “always necessary” conditions (consistency >0.90). Planning and budgetary controls and managerial performance are “almost always necessary”, as the consistency was above 0.80 (see Ragin, 2009), and family involvement was not a “necessary condition”, as the consistency score was below 0.80, as shown in Table 3. These “necessary” and “not necessary” conditions may be present, absent or even redundant in the sufficiency analysis (Pappas and Woodside, 2021), meaning that the combinations are sufficiently capable of explaining hotel performance.

628 Table 3. Necessary conditions for hotel performance

Conditions	Consistency	Coverage
Value-based controls	0.962	0.562
~Value-based controls	0.202	0.795
Planning controls	0.816	0.581
~Planning controls	0.423	0.752
Budgetary controls	0.841	0.569
~Budgetary controls	0.389	0.797
Compensation controls	0.929	0.577
~Compensation controls	0.288	0.809
Managerial performance	0.872	0.592
~ Managerial performance	0.391	0.797
Family involvement	0.383	0.599
~Family involvement	0.714	0.539

629 Note: "always necessary" and "almost always necessary" consistency thresholds above 0.90 and 0.80, respectively.

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631 The sufficiency analysis was carried out using a truth table, allowing for the "factual"
632 analysis of causal conditions to predict the outcome. Following Ragin (2009), a consistency
633 threshold of 0.90 and frequency of two were established. Table 4 presents the combination of the
634 parsimonious and intermediate solutions. Peripheral management controls appear only in the
635 intermediate solutions, while core controls appear in both the parsimonious and intermediate
636 solutions.

637 The fsQCA results illustrate three solutions leading to high hotel performance. Raw
638 coverage represents the number of cases that are explained by the solution and is analogous to
639 effect size. The overall solution coverage is similar to R^2 and shows how hotel performance is
640 explained by management controls. Finally, the solution consistency of this approach is similar
641 to that of the regression coefficients (Ragin, 2009).

642 The solutions involve different configurations but are equally effective in achieving high
643 hotel performance. The first fsQCA solution shows the combination of the presence of value-
644 based controls, compensation controls, and family involvement, the absence of planning controls
645 and the indifference of budgetary controls and managerial performance. The second solution
646 shows the presence of value-based controls, compensation controls and managerial performance,
647 the absence of budgetary controls and the indifference of planning controls. The third solution
648 demonstrates the presence of value-based controls, planning controls, budgetary controls and
649 managerial performance, the absence of compensation controls and nonfamily involvement.

These solutions lead to high hotel performance and are above the consistency threshold of 0.80. These results demonstrate that value-based controls appear in all solutions, while calculative controls are more present in cases of absence of family involvement (e.g., solution 3). Value-based controls are a very important management control for hospitality firms in general. However, when family involvement is present, value-based controls become a core condition, while in the absence of family involvement, they become a peripheral condition. Additionally, these results are in line with those of the PLS regression, suggesting that value-based controls in family-owned hotels are more effective than calculation-based controls. Similarly, planning and budgetary controls are weaker on family-owned hotels, and calculative controls are less effective for those firms with the exception of compensation control.

Table 4. Results of fsQCA for combinations of management controls leading to high performance

Solutions	1	2	3
Value-based controls	●	●	●
Planning controls	⊗		●
Budgetary controls		⊗	●
Compensation controls	●	●	⊗
Managerial performance		●	●
Family involvement	●	●	⊗
Raw Coverage	0.218	0.170	0.197
Unique Coverage	0.070	0.023	0.106
Consistency	0.902	0.938	0.929
Solution coverage	0.346		
Solution consistency	0.891		

Note: Solid circles (●) indicate the presence of the control. Circles with a cross (⊗) indicate absence. Small circles represent peripheral controls, and large circles represent core controls. Blank space suggests that the control is redundant to achieve the outcome.

5. Discussion and conclusions

This study highlights the importance of controls for the effective management of hospitality organizations, using survey and archival data to examine the complementarities and

interwoven effects of value- and calculation-based controls in the achievement of high hotel performance. The findings extend those of the previous literature, which has scarcely addressed the role of value-based controls in the effective management of hospitality organizations (Paul et al., 2015). This study argues that value-based controls encourage greater organizational identification among employees in the hospitality industry. The strong regional embeddedness of hotels with the local community (Peters and Kallmuenzer, 2015) calls for specific attention to be given to value-based- rather than calculation-based controls. Value-based controls communicate and enforce a firm's values and delimitated domains of acceptable and expected behaviors, providing flexible guidance and organizational incentives (Pfister and Lukka, 2019) for employees to achieve organizational goals (Gerdin et al., 2019).

The results of this study show that the effects of value-based controls on hotel performance are greater than those of planning, budgetary, or even compensation controls. The fsQCA approach reinforces the relevance of value-based controls as part of management control systems (Bisbe and Malagueño, 2015; Bedford et al., 2016), which suggests that these controls are present in all configurations that lead to the achievement of high performance. It is argued that calculation-based controls may become rigid and static and restrict hotels' responses to unpredictable demands, which can attenuate their effectiveness in this turbulent and very competitive environment. In this sense, the results reveal that budgetary controls are negatively associated with hotel performance. Despite their multidimensional purposes, one of the main uses of budgetary controls in the hospitality industry is cost monitoring (Phillips and Louvieris, 2005; Uyar and Bilgin, 2011), which can create incentives that are not fully related to improving the quality of services or responding to customer feedback and demands. These findings depict the importance of considering the interwoven, rather than independent and isolated, effects of value- and calculation-based modes of control on hospitality management and research.

Following the previous research that has recognized the importance of family involvement to explain the adoption and effectiveness of management practices in hospitality (Kallmuenzer and Peters, 2018), this study examines and finds support for the moderating role of family involvement in the relationship between management control and hotel performance. The results show that the presence of family members in the governance of hotels strongly influences the effectiveness of value-based controls in incentivizing employees' desirable behavior, which is reflected in hotel performance. The asymmetric approach supports this finding by revealing

value-based controls as core management controls when family involvement is a present condition, leading to high hotel performance. Among the other abovementioned aspects, these results, which are consistent with the PLS-SEM findings, are believed to be motivated by the presence of family members in the community. The previous research has observed family-owned hotels to be important actors in local communities, presenting a greater knowledge of cultural aspects such as the local context and the language understood and practiced by locals (Kallmuenzer and Peters, 2018). Family-involved hotels build and manage their business strategy considering these regional aspects. These specific practices are reflected in employees' behaviors, with desirable effects on customers. The results of this research expand the previous evidence by showing that family-involved hotels benefit more from value aspects of management than nonfamily hotels.

The results also reveal that family involvement decreases the effects of planning and budgetary controls on hotel performance while amplifying the effects of compensation controls on hotel performance. These findings are aligned with those of the fsQCA, which shows that in the presence of a family involvement condition, planning and budgetary controls are absent and redundant, whereas compensation controls are a present condition. As noted in the previous literature, planning, budgetary and compensation controls are commonly used by hotels (Jones, 2008; Phillips and Moutinho, 2014; Pan, 2015), but their effectiveness varies. Due to the unpredictable and highly turbulent environment in the hospitality industry, calculation-based controls, such as planning and budgetary controls, seem to be more restrictive for family-involved hotels, potentially bringing about a myopic view in which employees' attention and efforts are directed toward the achievement of pre-established goals rather than short-term immediate needs. In contrast, it is observed that compensation controls are particularly effective in family-involved hotels. This result may be explained by the relative flexibility of compensation controls in family hotels. As family owners are commonly involved in the daily activities of the organization, the hierarchical barriers between operational and strategic levels are reduced (Vardaman et al., 2018); consequently, it is easier for employees to be recognized and compensated in such firms.

The findings also show that planning and budgetary controls benefit managerial performance, which suggests that those controls are extensively used to attribute roles, outline daily managers' tasks, influence employees, and achieve managerial goals. Although the results

of this study do not show that better managerial performance directly affects hotel performance in terms of OHRs, it is expected that in the long term, this relationship will be reflected in higher levels of consumer satisfaction.

5.1.Theoretical implications

The results of this study contribute to management control theory in hospitality. First, this study advances previous work in hospitality literature that has only rarely examined the role of controls other than calculation-based controls (Bortoluzzi et al., 2020). It brings value-based controls to the forefront of the debate on how to support organizational effectiveness in the sector. The evidence presented in this study suggests that value forms of control in hospitality stand out as the central mechanism that provides flexibility for organizations to quickly respond to dynamic customer demands. Hence, this research highlights the importance of embedding firm values in managerial practices and communicating these values to stakeholders. Second, the results broaden the understanding of how management controls are important for hotels and demonstrate that the involvement of family members in management is a critical feature to be considered when examining the effectiveness of these controls (Kallmuenzer & Peters, 2018). While this research shows a more pronounced effect of value-based controls in family-involved hotels, it also demonstrates that planning and budgetary controls become more effective in nonfamily-involved hotels, which are characterized by more bureaucratic and decentralized structures. The evidence contributes to management control theory as it recognizes that flexible forms of control interacting with family modes of management enhance family hotel performance more than other formalized and rigidity control practices. Furthermore, the suggested benefit impact of family involvement on the effect of value-based controls on hotel outcomes is recognized as a fine-grained contribution to management control theory. Third, the unexpected but interesting empirical evidence of this study, which shows a positive impact of compensation controls on hotel performance when family members are highly involved in management, enriches the current theoretical debate about the interplay and complementarity among management controls (Gerdin et al., 2019). By examining different forms of management controls, this study provides initial evidence of the extent to which value- and calculation-based controls can operate as complements or substitutes in hospitality management. The results

presented in this study indicate that although value-based controls (calculation-based controls) are more effective for family-involved hotels (nonfamily-involved hotels), their adoption should be combined as the complementarity of value- and calculation-based controls benefit daily management and the achievement of organizational goals. Thus, this research broadens the role of management control in hospitality and provides avenues for further research.

5.2. Managerial implications

Finally, this study provides meaningful implications for the hotel and tourism sector, as it draws the attention of hotel managers to the positive impact of value-based controls on aligning organizational participants with organizational goals, thus impacting managerial and hotel performance. More specifically, the findings suggest that value-based controls can be used to improve hotel management and increase the commitment of employees to the achievement of higher levels of service provision. This study encourages hotel managers to invest more in their value system by dedicating resources to diffuse organizational value, implementing an adequate selection process, and encouraging employees to feel pride and that they are part of their organizations (e.g., via socialization, events). These actions motivate, incentivize and empower frontline employees to be responsive to customers, which leads to higher levels of customer satisfaction. Hotel family managers are also encouraged to strengthen the hotel compensation system to incentivize employees' behavior congruence with hotel goals. Thus, hotels are recommended to complement the use of value-based controls with compensation controls. Additionally, this research highlights the potential problems of overreliance on calculation-based controls such as budgetary controls. Although such controls are essential for daily management, they might bring some level of rigidity to hotels with negative effects on OHRs. Finally, this study shows that internal management practices are important drivers of managerial roles and online customer reviews. The tailored adoption of value- and calculation-based controls in hotels has positive impacts on employees and communities. The gains in service quality benefit tourist activity as a whole as hotels are important contributors to the creation of jobs, quality of life and regional wealth.

5.3. Limitations and directions for future research

This research is subject to a few limitations. First, the research design employed in this study prevents arguments about unidirectional causality. Although associations between management controls and hotel performance are observed, there may be settings in which performance influences the adoption and use of management controls. For instance, Bortoluzzi et al. (2020) showed that OHRs influence the design of management controls. Future studies can attempt to identify whether OHRs can also be a means of supporting managers during the adoption and use of management controls. Second, this research assesses hotel performance through OHRs. Although OHRs are a very comprehensive measure of hotel performance from customers' experience, they may not necessarily convert into financial outcomes (Anagnostopoulou et al., 2020). Future research may consider capturing hotel performance via more traditional measures of performance such as profitability, return on assets, return on equity and return on investment. Finally, as this study was conducted in Brazil, generalizations of its findings to different contexts should be made with caution as responses to management control are culture-sensitive.

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