

Research Article

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The Strategic Performance Measurement System and Organisational Performance Through the Lenses of Contextual Factors: Empirical Evidence from the Hotel Industry

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Abstract: The unprecedented effects of COVID-19 have been problematic for hotels. Therefore, implementing a performance measurement system (PMS) has become critical for hotel organisations. This study thus examined how the balanced scorecard (BSC) as a strategic PMS has a function in revealing hotel performance. Two contextual factors of hotels—external environmental uncertainty (EEU) and decentralised decision-making—were also investigated to understand their effects on the use of the BSC, which, in turn, determines hotel performance. A survey was conducted involving 145 four- and five-star hotels in Turkey. Partial least squares structural equation modelling was used to test the hypotheses. It was found that EEU is significantly related to decentralised decision-making but not to the BSC. Meanwhile, the BSC does not have an indirect effect on the relationship between EEU and hotel performance; however, it was found to act as a mediator between the decentralisation of decision-making and hotel performance. Finally, decentralised decision-making was found to act as a mediator between EEU and the BSC.

Keywords: Performance measurement system; COVID-19; balanced scorecard; external environmental uncertainty; decentralised decision-making; hotel performance

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1 Introduction

Hotel organisations have faced extremely difficult times due to the catastrophic impact of the COVID-19 pandemic. Therefore, the implementation of performance measurement systems (PMSs) has become critical (Aguinis & Burgi-Tian, 2021; Nudurupati et al., 2021). In this regard, hotel organisations not only have to focus on achieving the desired financial performance, but also on conducting efficient, healthy, and safe service operations (Garrido-Moreno et al., 2021). This means that measuring both financial and nonfinancial aspects is crucial to performance outcomes (Sainaghi et al., 2017). Organisations implement various types of PMSs to assess their performance, including the balanced scorecard (BSC), budgeting systems, etc. Their reason for using different PMSs is related to contingency theory, which states that each organisation has a different set of conditions in terms of, for example, managerial structure, competitive environment, category, and location, which means that no single PMS is suitable for all organisations (Chenhall, 2006; Pavlatos, 2018). In short, the theory emphasises the importance of a good fit between contextual factors and the PMS implemented.

External environmental uncertainty (EEU) and decentralised decision-making are two important factors in the conceptualisation of contingency theory (Chaib Lababidi et al., 2020; Chenhall, 2006). Here, EEU is related to managers' perceptions of the predictability of their outside environment, which entails considering changes in customer preferences, technological advances, and various economic and competitive issues, all of which are difficult to accurately anticipate (Kafetzopoulos et al., 2020). Decentralised decision-making is defined in terms of the assignment of decision rights to the divisional managers within an organisation's management system (Chaib Lababidi et al., 2020). Given that the external environment

of hotel organisations is regarded as being uncertain, volatile, and complex, an internal decentralised organisational structure is recommended in hotels as it allows for flexible and speedy responses to any unexpected situation (Bangchokdee & Mia, 2016).

As a strategic PMS, the BSC pertains to the characteristics of hotel organisations and is composed of four dimensions: financial, customer, internal business process, and innovation and learning. This PMS provides necessary performance information to organisations by addressing certain questions, such as these: How do we look to shareholders? How do customers see us? What must we excel at? Can we continue to improve and create value? (Kaplan & Norton, 2010). Thus, it overcomes the deficiencies of traditional PMSs (Kaplan & Norton, 2010; Sainaghi, Köseoglu, *et al.*, 2019). In terms of the existing body of literature, although a number of studies have examined PMSs in relation to different contingency factors (e.g. Uyar & Kuzey, 2016), there has been a lack of studies on the application of a strategic PMS that take some of its determinants into consideration (Chaib Lababidi *et al.*, 2020; Sainaghi *et al.*, 2017). Regarding the hotel industry, the impact of certain contextual factors on a strategic PMS has not received the empirical attention it deserves, and there is also a gap in the research with respect to developing nations, with only a few exceptions (Arasli *et al.*, 2019).

With this in mind, this research was conducted with a focus on four- and five-star hotels in Turkey, one of the most popular tourism destinations in the world (Köseoglu *et al.*, 2018). The expectation is that the results of this study will shed light on the use of hotel PMS within the context of a developing nation. Specifically, the focus was on examining how EEU and decentralised decision-making can be used to explain the use of a specific strategic PMS (i.e. the BSC) during the COVID-19 pandemic. A further aim was to ascertain whether the BSC acts as a mediator between contextual factors and hotel performance. Although the topic of implementing a strategic PMS has long been a concern for various researchers, few empirical studies have been conducted during these unprecedented times of the COVID-19 pandemic. For their part, Aguinis and Burgi-Tian (2021) applied a performance promoter score system to measure performance during the COVID-19 crisis, and Garrido-Moreno *et al.* (2021) determined strategic measures for the recovery of Spanish hotels and underlined the need for empirical studies in this field. Conducting the research reported here was thus regarded as valuable in terms of providing further empirical support. Specifically, this research attempted to ascertain whether the two factors in question—EEU and decentralised decision-making—can still be regarded as

the determinants of the BSC, as well as whether the BSC is still useful and relevant for revealing performance results during this unique and impactful period. It is critical to address these questions because the perception-based findings of previous studies might no longer be applicable due to the impact of COVID-19. Thus, this research timely contributes to the body of literature related to hospitality performance measurement while considering the current global health situation, which continues to have a devastating effect on all sectors, especially the hospitality industry.

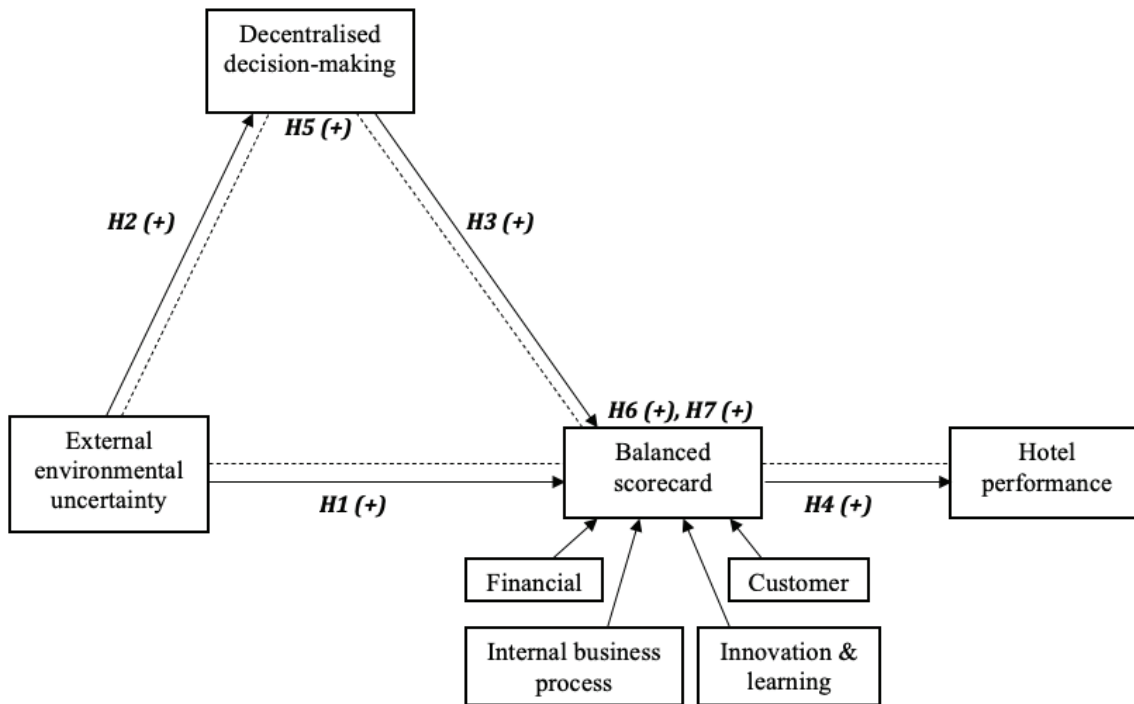
2 Literature Review and Hypotheses Development

This study adopted contingency theory since it helps to explain the suitability of using a specific PMS depending on the conditions under which it is being used. This section presents the literature review and outlines the development of the hypotheses. The study model is shown in Figure 1.

2.1 External Environmental Uncertainty and the Balanced Scorecard

An organisation's external environment is one of the critical factors that determines the suitability of a specific PMS (Chenhall, 2006; Nudurupati *et al.*, 2021). Changes in an organisation's external environment will lead to changes in its informational needs, which will, in turn, shape its use of a PMS (Henri & Wouters, 2020). Bititci *et al.* (2018) noted that organisational managers need a PMS to obtain current information in a dynamic environment. Thus, given the environmental conditions of today, financial performance measures have been found to be largely ineffective for assessing organisational performance because they only reflect an organisation's past activities (Kaplan & Norton, 2010). In an uncertain business environment, these measures are inadequate as they fail to evaluate other important performance-related areas, such as customer base, market share, and business operations. Therefore, integrating nonfinancial measures within performance measurement practices has been stressed as crucial for an organisation's long-term success (Kaplan & Norton, 2010; Sainaghi, 2010).

Gosselin (2011) reported that when there was uncertainty in the manufacturing business environment, managers had a greater tendency to adopt the BSC. Neverthe-



Direct effects: ———

Indirect effects: - - - - -

H5: External environmental uncertainty → decentralised decision-making → balanced scorecard

H6: External environmental uncertainty → balanced scorecard → hotel performance

H7: Decentralised decision-making → balanced scorecard → hotel performance

Figure 1: Proposed research model

less, a number of studies have revealed an insignificant relationship between EEU and performance measurement techniques. To illustrate, Ahmad and Zabri (2016) found that an uncertain environment surrounding manufacturing firms in Malaysia did not affect the use of nonfinancial performance measures. In addition to these inconsistent findings, a review of the literature indicated that this issue has received little attention in the context of the hotel industry, with the exception of a study conducted by Arasli et al. (2019). In this study, the authors researched various five-star resort hotels in the Antalya region of Turkey, demonstrating that environmental uncertainty was mainly related to financial, customer, and operational measures. Moreover, the association between

environmental uncertainty and the use of customer and marketing performance measures was not supported by McManus (2013).

It is evident that the aforementioned studies have produced inconsistent outcomes. Hotel organisations' surrounding environment is characterised by a high level of uncertainty and complexity and varied customer interaction. However, unlike past crises that the hotel industry has faced, the COVID-19 pandemic has caused tremendous challenges. Thus, given the changing future of the hotel industry and its dependency on the external environment, it is critical for hotel organisations to implement a strategic PMS that provides environmental information to reveal a complete picture of hotels' performance, such as the BSC. Consequently, it is important to determine how the BSC meets the current demands of the uncertain environment surrounding hotel organisations. The following hypothesis was thus proposed:

Hypothesis 1: EEU is positively related to the use of the (a) financial, (b) customer, (c) internal business process, and (d) innovation and learning dimensions of the BSC in hotels.

2.2 The Impact of External Environmental Uncertainty on Decentralised Decision-Making

The existing literature states that differences in organisational structures arise from the different environmental uncertainties organisations face (Crespo *et al.*, 2019). Thus, the external environment is influential in terms of shaping an organisation's internal decision-making structure (Nandakumar *et al.*, 2010). The dynamic business environment has resulted in increased managerial complexity, which has, in turn, created the conditions for power and control delegation. For instance, Uyar and Kuzey (2016) demonstrated that decentralised decision-making is related to environmental uncertainty. Furthermore, a recent study specified the importance of an organisation's decentralised decision-making in an unpredictable environment (Chaib Lababidi *et al.*, 2020).

Bangchokdee and Mia (2016) reported that decentralised decision-making in hotels enables flexible and speedy responses to the external environment and recommended that this relationship be further investigated within the hotel context. Until recently, customer interaction has been an inevitable factor for the hotel industry as the provision of services and the presence of customers occur simultaneously (Pavlatos, 2015). However, this situation has changed due to the increased use of technology and the requirement to reduce physical interaction to a minimum as a result of COVID-19 (Garrido-Moreno *et al.*, 2021). Therefore, given the latest developments in the industry, this article examined whether EEU remains a determinant of decentralised decision-making. Hypothesis 2 was thus proposed:

Hypothesis 2: EEU is positively related to decentralised decision-making in hotels.

2.3 Decentralised Decision-Making and the Balanced Scorecard

Organisational structure is a central variable from a managerial contingency perspective and has long been researched (Chaib Lababidi *et al.*, 2020; Chenhall, 2006; Crespo *et al.*, 2019). A centralised organisational structure is described in terms of centralised decision-making and strictly adhering to formal rules and procedures. Meanwhile, a decentralised structure is defined in terms of the authorisation of middle managers to take responsibility for decision-making, with less emphasis placed on formal rules and procedures (Nandakumar *et al.*, 2010). Various

studies have found an association between decentralised decision-making and financially denominated performance measures (e.g. Crespo *et al.*, 2019), whereas others have demonstrated the exact opposite (e.g. Bangchokdee & Mia, 2016). The argument for the latter is that managers do not find financial performance measures to be sufficient to base their decisions solely on them. In organisations with a decentralised structure, senior managers need reliable performance measures to examine whether the delegated decisions taken are optimal for the organisation (Bangchokdee & Mia, 2016). In this context, numerous studies have investigated the determining role of decentralised decision-making on different types of PMSs (Henri & Wouters, 2020; McManus, 2013). For example, Pavlatos (2018) found a significant positive relationship between the decentralisation of decision-making in service firms and strategic cost management. However, Gosselin (2011) was unable to confirm the relationship between manufacturing organisations' decentralised decision-making and the BSC. Given that, in terms of the BSC, the relevant research remains limited in the hotel industry and that the findings of the aforementioned studies have been largely inconsistent, investigating whether decentralised decision-making in hotels creates a need for the BSC is a worthy pursuit. Thus, the following hypothesis was proposed:

Hypothesis 3: Decentralised decision-making is positively related to the use of the (a) financial, (b) customer, (c) internal business process, and (d) innovation and learning dimensions of the BSC in hotels.

2.4 The Balanced Scorecard and Hotel Performance

Hotel performance and PMSs have attracted an increasing amount of attention in recent years (Sainaghi, Köseoglu, *et al.*, 2019). Financial performance measures are easily obtained due to their quantitative and historical nature, whereas nonfinancial performance is more difficult to accurately determine (Sainaghi, Phillips, & d'Angella, 2019). The nonfinancial measures provide diverse information on customers, business operations, and employees (Henri & Wouters, 2020), all of which is crucial to the determination of an organisation's future performance. Therefore, integrated PMSs are being regarded as increasingly important among organisations, as they play an essential role in capturing the different aspects of organisational performance. In this context, the BSC reveals an organisation's performance level through a number

of main dimensions— innovation and learning, internal business processes, and customers—and then relates the outcomes to its financial performance. For example, the indicators within the innovation and learning dimension indicate the level of qualified hotel staff, which is crucial to providing quality service to guests in a timely manner, meaning that guests will be satisfied with the hotel's services, which will, in turn, reflect positively on its financial returns. Thus, the system enables organisations to both achieve their desired performance and support their long-term strategy.

Although the literature indicated that the association between various PMSs and organisational performance has been extensively explored, inconsistent findings have been reported. Some studies have reported a positive relationship (e.g. Arasli et al., 2019), whereas others have revealed insignificant outcomes (e.g. McManus, 2013). Bititci et al. (2018) underlined that this issue should not be neglected because it remains largely inconclusive, especially in relation to the hotel industry (Sainaghi, Köseoglu, et al., 2019), where major operational changes have occurred due to the COVID-19 pandemic. Similarly, Elbanna et al. (2015) underlined that research on the role of the BSC in hotel performance remains inadequate and called for more empirical research. One exception is the study conducted by Arasli et al. (2019), which found a positive relationship between the adoption of the BSC and performance in five-star resort hotels. Thus, expecting similar results, this research examined whether the BSC continues to assist in improving hotel performance. Therefore, the following hypothesis was proposed:

Hypothesis 4: The use of the (a) financial, (b) customer, (c) internal business process, and (d) innovation and learning dimensions of the BSC is positively related to hotel performance.

2.5 Indirect Effects: The Influence of External Environmental Uncertainty on the Balanced Scorecard Through Decentralised Decision-Making

In an unstable environment, organisations are unable to precisely predict what awaits them. Decentralised decision-making enables timely and effective actions to be taken under changing conditions; thus, it enables authorised managers to deal with any uncertainty that arises in the environment (Chaib Lababidi et al., 2020; Crespo et al., 2019), which highlights the necessity of advanced

PMSs. With respect to this, Uyar and Kuzey (2016) reported the mediating role of decentralised decision-making in relation to EEU and budget use. To understand the effectiveness of decentralised decision-making in the dynamic hotel industry, hotels require not only financial performance data but also nonfinancial information (Arasli et al., 2019). The BSC is believed to provide such additional information. Thus, given the current uncertainty of the external environment, implementing decentralised decision-making is likely to increase the use of the BSC. In accordance with the gap in the existing literature, this study highlights the need for further research on this issue, especially within the hotel context. Hence, the following hypothesis was proposed:

Hypothesis 5: There is a positive relationship between EEU and the use of the (a) financial, (b) customer, (c) internal business process, and (d) innovation and learning dimensions of the BSC through decentralised decision-making in hotels.

2.6 Indirect Effects: The Influence of External Environmental Uncertainty on Hotel Performance Through the Balanced Scorecard

With a high level of uncertainty, organisations can implement various PMSs to obtain the information they need, which will, in turn, determine the performance outcomes. Within this context, previous studies have yielded certain empirical evidence (Uyar & Kuzey, 2016). One study related to Greek service organisations reported that environmental uncertainty was positively related to strategic cost management, which in turn had a positive impact on performance (Pavlatos, 2018). However, Hoque (2004) conducted research on specific manufacturing companies and could not find any mediating effect of nonfinancial performance measures on the association between environmental uncertainty and firm performance. This issue has not received sufficient attention in relation to the hotel industry, with the exception of the study conducted by Arasli et al. (2019). Thus, a better understanding, taking the impact of COVID-19 into consideration, is required. In today's complicated hotel environment, this article argues that managers tend to use the BSC as it provides them with the necessary information to determine their hotel's performance. Thus, the following hypothesis was proposed:

Hypothesis 6: There is a positive relationship between EEU and hotel performance through the use of the (a)

financial, (b) customer, (c) internal business process, and (d) innovation and learning dimensions of the BSC.

2.7 Indirect Effects: The Influence of Decentralised Decision-Making on Hotel Performance Through the Balanced Scorecard

Few studies have investigated the relationship between decentralised decision-making and organisation performance in relation to the mediating role of PMSs. For example, decentralised decision-making was found to be indirectly related to company performance through the mediating role of budget use (Uyar & Kuzey, 2016). Another study indicated that decentralised decision-making in hotels is only associated with better performance through the use of nonfinancial performance measures (Bangchokdee & Mia, 2016). Strategic PMSs are more important in the case of a decentralised hotel structure as it facilitates managers' decision-making. The BSC—with its four dimensions and performance indicators—is useful to hotel managers in terms of measuring performance from a holistic perspective. However, the aforementioned studies have indicated that there remains a need for more empirical research on how decentralised decision-making affects performance through the role of the BSC. Hence, the following hypothesis was proposed:

Hypothesis 7: Decentralised decision-making is positively related to hotel performance through the use of the (a) financial, (b) customer, (c) internal business process, and (d) innovation and learning dimensions of the BSC in hotels.

3 Methodology

3.1 Sample and Data Collection

This study was conducted in relation to various four- and five-star hotels in Turkey. According to the United Nations World Tourism Organization's (2020) International Tourism Highlights, 2020 Edition, Turkey remains in the top ten of the world's top tourism destinations. Tourism is an important contributor to Turkey's economy and development (Köseoglu *et al.*, 2018), making it an appropriate context for this study. Four- and five-star hotels were chosen because they attract numerous tourists due to their facilities. Additionally, larger organisations tend

Table 1: Respondents' profile ($N = 145$)

Characteristics	Frequency	Percent
Gender		
Male	122	84.1
Female	23	15.9
Age		
18–27	13	9.0
28–37	30	20.7
38–47	48	33.1
48–57	53	36.6
58+	1	0.7
Education		
Secondary school	3	2.1
High school	22	15.2
Two-year college degree	20	13.8
Four-year college degree	76	52.4
Graduate degree	24	16.6
Organisational tenure		
Less than 1 year	27	18.6
1–5 years	68	46.9
6–10 years	25	17.2
11–15 years	8	5.5
16–20 years	7	4.8
More than 20 years	9	6.2

to use more advanced PMSs (Arasli *et al.*, 2019). Hotels with more than 101 beds are considered large hotels (Pavlatos, 2015). In this study, hotels with between 110 and 2,800 beds were chosen, and senior hotel managers were selected as the participants. A total of 180 questionnaires were distributed to these managers; 145 were returned, yielding a response rate of 81%, which is comparable to previous studies (Hoque, 2004; Pavlatos, 2018), particularly those conducted during the COVID-19 pandemic. A member of the research team sent the online surveys by providing a link and informed the potential respondents that their participation was anonymous and that their responses would be used for academic purposes only. Moreover, pilot questionnaires were conducted to check the clarity, relevancy, and coherency of the questions before the final version of the questionnaire was distributed. The demographic details of the respondents are presented in Table 1.

3.2 Measures

The scales used were originally in English. Therefore, a back-translation method was used in which the scale items were first translated from English into Turkish and then from Turkish back into English to verify the item equivalence in each language (Brislin, 1980). In this study,

EEU, decentralised decision-making, the BSC, and hotel performance were measured.

3.2.1 External Environmental Uncertainty

A six-item scale (e.g. the tastes and preferences of customers) taken from Gordon and Narayanan (1984) was used to assess EEU. Hotel managers' ratings for EEU were measured based on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Other researchers have used this scale to measure EEU (e.g. Gosselin, 2011; Hoque, 2004).

3.2.2 Decentralised Decision-Making

A six-item scale by Gordon and Narayanan (1984) was used to assess decentralised decision-making. A 7-point Likert-type scale—ranging from 1 (*strongly disagree*) to 7 (*strongly agree*)—was used to measure the scale items (e.g. budget allocations). This scale has been used in previous studies (e.g. Bangchokdee & Mia, 2016; Uyar & Kuzey, 2016).

3.2.3 Balanced Scorecard

The BSC was measured using Elbanna et al.'s (2015) scale, which contains the following: finance dimension (nine items), customer dimension (nine items), internal business process dimension (six items), and innovation and learning dimension (nine items). Example items for the BSC's four dimensions were return on sale, customer retention rate, efficiency of operations, and staff development, respectively. The respondents were asked to indicate the extent of their hotel's use of each measure across the four dimensions using a 5-point Likert-type scale ranging from 1 (*to a little extent*) to 3 (*to some extent*) to 5 (*to a great extent*).

3.2.4 Hotel Performance

The hotel performance scale was adapted from McManus (2013) and was measured in terms of seven items (e.g. profitability). The respondents were asked to assess their hotel's performance relative to their competitors on a 7-point Likert-type scale ranging from 1 (*well below average*) to 7 (*well above average*).

Table 2: Results: Assessment of the measurement model for first-order constructs

Construct/related items	Outer loadings	CR	AVE
External environmental uncertainty		0.730	0.598
EEU4	0.500		
EEU5	0.973		
Decentralised decision-making		0.865	0.563
DEC1	0.710		
DEC2	0.668		
DEC3	0.840		
DEC4	0.799		
DEC5	0.722		
Finance		0.937	0.622
FINA1	0.734		
FINA2	0.766		
FINA3	0.825		
FINA4	0.812		
FINA5	0.803		
FINA6	0.683		
FINA7	0.868		
FINA8	0.808		
FINA9	0.787		
Customer		0.919	0.558
CUST1	0.837		
CUST2	0.730		
CUST3	0.778		
CUST4	0.697		
CUST5	0.768		
CUST6	0.707		
CUST7	0.822		
CUST8	0.736		
CUST9	0.625		
Internal business process		0.865	0.620
IBP1	0.828		
IBP2	0.872		
IBP3	0.821		
IBP6	0.598		
Innovation & learning		0.909	0.589
IL1	0.777		
IL2	0.797		
IL3	0.747		
IL6	0.664		
IL7	0.848		
IL8	0.835		
IL9	0.686		
Hotel performance		0.931	0.658
PERF1	0.781		
PERF2	0.857		
PERF3	0.843		
PERF4	0.859		
PERF5	0.794		
PERF6	0.699		
PERF7	0.835		

Note: CR = composite reliability; AVE = average variance extracted.

4 Results and Findings

4.1 Measurement Model Assessment

Partial least squares structural equation modelling was used to test the hypotheses as it is convenient for studies involving sophisticated models with small sample sizes, something that has seen its popularity rise in the area of management research (Crespo *et al.*, 2019).

This study included three reflective constructs: EEU, decentralised decision-making, and hotel performance. The BSC was included in the study model as a second-order construct with its four reflective dimensions: finance, customer, internal business process, and innovation and learning. Thus, in this study, a two-stage approach was used to establish the second-order construct required to assess the measurement model of the initial framework, which consisted of seven reflective constructs (Ali *et al.*, 2018). In the first stage, the reliability and convergent validity of the reflective measurement model were

assessed by examining the outer loadings of the items associated with each construct, as well as the composite reliability (CR) and average variance extracted (AVE) (Ali *et al.*, 2018; Hair *et al.*, 2017). To establish reliability and convergent validity, the outer loadings, CR, and AVE values should have exceeded 0.7, 0.7, and 0.5, respectively (Hair *et al.*, 2017). However, loadings of between 0.5 and 0.7 were acceptable if the CR and AVE met the threshold (Hair *et al.*, 2017). Table 2 shows the results for all reflective constructs that were acceptable in the first stage, indicating that reliability and convergent validity had been established.

Next, discriminant validity was determined by employing the Fornell–Larcker criterion and the heterotrait–monotrait (HTMT) approaches (Henseler *et al.*, 2015). To assess discriminant validity, the square root of the AVE for each construct needed to be higher than its correlation with other constructs (Fornell & Larcker, 1981; Hair *et al.*, 2017). According to Henseler *et al.* (2015), the HTMT value for all constructs should be lower than 0.9 to establish discriminant validity. As Tables 3 and 4 show,

Table 3. Discriminant validity; Fornell–Larcker

	1	2	3	4	5	6	7
1. IBP dimension of BSC	0.787						
2. Customer dimension of BSC	0.747	0.747					
3. External environmental uncertainty	0.106	0.111	0.773				
4. Financial dimension of BSC	0.408	0.594	0.146	0.789			
5. I&L dimension of BSC	0.727	0.692	0.165	0.408	0.767		
6. Hotel performance	0.575	0.704	0.080	0.706	0.505	0.811	
7. Decentralized decision making	0.454	0.412	0.321	0.305	0.514	0.271	0.750

Abbreviations: BSC: balanced scorecard; IBP: internal business process; I&L: innovation and learning.

Table 4. Discriminant validity; HTMT

	1	2	3	4	5	6	7
1. IBP dimension of BSC							
2. Customer dimension of BSC	0.895						
3. External environmental uncertainty	0.172	0.235					
4. Financial dimension of BSC	0.477	0.639	0.217				
5. I&L dimension of BSC	0.876	0.785	0.243	0.440			
6. Hotel performance	0.685	0.774	0.142	0.760	0.562		
7. Decentralized decision making	0.573	0.485	0.431	0.330	0.598	0.314	

Abbreviations: BSC: balanced scorecard; IBP: internal business process; I&L: innovation and learning.

the results demonstrated acceptable discriminant validity based on these two approaches.

In the second stage, multicollinearity was assessed using the variance inflation factors (VIF) for the four items comprising the second-order BSC composite construct, as well as the significance of the outer weights (Hair et al., 2017). Thus, the model used in this study consisted of one second-order formative construct (BSC) and three reflective constructs (EEU, decentralised decision-making, and hotel performance). Here, the VIF should have been less than 5 and the outer weights of the composite construct's items should have been significant to ensure that the measurement model was acceptable (Ali et al., 2018). The results indicated that the VIF values for the four items comprising the BSC were between 1.553 and 3.174, indicating low to acceptable collinearity. Furthermore, the outer weights of these items were significant. Thus, the results confirmed that the measurement model was appropriate for both the first and second stages.

4.2 Structural Model Assessment

Table 5 shows the results for all hypothesised relationships. The R^2 values for the BSC and hotel performance were 0.230 and 0.613, respectively, indicating an acceptable level of R^2 . A bootstrapping procedure was used to assess the significance of the path coefficients (Hair et al., 2017), with the results supporting the direct effects of EEU on decentralised decision-making in hotels (H2) but not on the BSC (H1). Moreover, the results indicated the direct effect of decentralised decision-making on the BSC (H3), as well as the positive significant effect of the BSC on hotel performance (H4). With respect to the indirect effects, a product coefficients approach was applied, with the significance of the indirect effects assessed using specific bias-corrected bootstrap confidence intervals (Hayes

& Scharnow, 2013). As Table 5 shows, the mediating role of decentralised decision-making on the association between EEU and the BSC (H5) was significant. Similarly, the indirect effect of decentralised decision-making on hotel performance through the BSC was significant (H7). However, the results revealed contrasting findings in terms of the indirect effect of the BSC on the relationship between EEU and hotel performance (H6).

5 Discussion and Conclusions

In this study, a research model was tested that determined how EEU and decentralised decision-making have an impact on the use of the BSC, which in turn determines hotel performance. The data obtained from the managers of a number of four- and five-star hotels in Turkey demonstrated that the majority of the research findings are in line with those reported in the relevant body of literature.

The first hypothesis argued that in an unpredictable hotel environment, the BSC provides the necessary information on the way a hotel relates to its environment. However, an insignificant relationship was found between the BSC and the Turkish hotel industry's uncertain operating environment. These results are similar to those obtained by Ahmad and Zabri (2016), who found that an organisation's uncertain environment is not related to its use of nonfinancial performance measures. The second hypothesis examined the effect of EEU on the decentralisation of decision-making. The results revealed that EEU leads to decentralised decision-making in hotels due to the need to act in a timely manner; this is consistent with the outcomes of Uyar and Kuzey's (2016) study. The third hypothesis determined the association between decentralised decision-making and the BSC. The results demonstrated that decentralised decision-making in hotels leads to the use of the BSC, which is also in line with previous

Table 5: Results of hypotheses

	Path coefficient	p-value	Confidence interval (bias corrected)	Supported
H1. External environmental uncertainty → BSC	0.003	0.486	[-0.156, 0.171]	No
H2. External environmental uncertainty → decentralised decision-making	0.325	< 0.01	[0.167, 0.434]	Yes
H3. Decentralised decision-making → BSC	0.478	< 0.01	[0.332, 0.579]	Yes
H4. BSC → hotel performance	0.783	< 0.01	[0.701, 0.837]	Yes
H5. External environmental uncertainty → decentralised decision-making → BSC	0.156	< 0.01	[0.072, 0.233]	Yes
H6. External environmental uncertainty → BSC → hotel performance	0.003	0.486	[-0.122, 0.137]	No
H7. Decentralised decision-making → BSC → hotel performance	0.374	< 0.01	[0.264, 0.459]	Yes

Note: BSC = balanced scorecard.

studies (Bangchokdee & Mia, 2016). The fourth hypothesis investigated the relationship between the BSC and hotel performance. The results were consistent with the findings of previous studies (Arasli *et al.*, 2019), suggesting that the use of the BSC leads to improved hotel performance outcomes. The fifth hypothesis proposed that a positive relationship exists between EEU and the BSC in hotels through decentralised decision-making. The findings supported the prevailing notion that decentralised decision-making has an indirect effect on this relationship. This indicates that EEU only leads to the use of the BSC where there is a decentralised structure in the Turkish hotel industry. The sixth hypothesis investigated the effects of EEU on hotel performance through the use of the BSC, with the outcomes indicating that the BSC does not mediate this relationship. Thus, in line with Hoque's (2004) results, this study could not corroborate the indirect effect of the BSC on the association between EEU and hotel performance. The final hypothesis proposed that decentralised decision-making is associated with hotel performance through the BSC. The outcomes revealed a significant relationship between decentralised decision-making and the BSC, which in turn determines hotel performance outcomes.

5.1 Theoretical Implications

This research was theoretically based on the integrated contingency model and examined how EEU and decentralised decision-making can be used to explain the use of the BSC, which in turn affects hotel performance, during the times of the COVID-19 pandemic. Thus, the current research contributes to the knowledge and serves as a base for future studies.

From a theoretical perspective, these findings clearly emphasise the factor of EEU, specifically the impact of the external environment on hotels' internal decision-making structures and performance assessments. An organisation's external environment includes various factors, including economic, sociocultural, political, legal, technological, and international factors (Arasli *et al.*, 2019; Köseoglu *et al.*, 2018). These factors inevitably affect organisations in terms of their internal management structures, information systems, and operational processes, and organisations generally have little to no control over these factors. Thus, as the existing literature suggests, when the environment is perceived as uncertain, organisations should adapt and use integrated PMSs to respond to the uncertainty and improve their performance. However, Aguinis and Burgi-Tian (2021) highlighted the

following important issue: Measuring the performance of organisations is always challenging, especially during uncertain times. In their study, the authors reported that when organisations experience uncertainties, they need to change their strategic directions, which results in updating the PMS, although it generally takes time for the performance measures themselves to catch up. This could be a possible explanation for the nonsignificant finding in terms of the EEU–BSC–hotel performance relationship, which calls for some caution. Similarly, Nudurupati *et al.* (2021) stated that in today's environmental conditions, finding a completely stable environment is unrealistic, and they classified business operating environments as either “stable/changing” or “turbulent.” While a changing environment indicates that the change occurs incrementally and can be predicted, a turbulent environment is one in which change occurs suddenly and unexpectedly, meaning that it is not predictable (Nudurupati *et al.*, 2021).

This study supported this notion in the sense that hotels are already operating in uncertain, changing environments, which is why managers need a balanced PMS and must delegate decision-making to middle managers to have the capacity to respond to the changing environment in a timely and effective manner. However, as defined earlier, we are undeniably no longer talking about the same changing environment. The jarring effect of COVID-19 has transformed the hotel environment into one of turbulence and volatility, meaning that the BSC might no longer be immediately responsive to today's hotel environment. Given the current turbulence in the environment caused by the pandemic, hotel organisations inherently require a greater amount of time, effort, and money to adapt their BSC.

According to the results related to a hotel's internal management structure, decentralised decision-making is perceived to be useful to achieving efficient service processes and reveals the need for a BSC that could enhance performance. In a decentralised structure, hotels benefit from using their BSC to catch up with their internal environment and achieve better performance.

All of these consequences have converged into a perspective wherein being resilient to suddenly emerging situations has become increasingly important.

5.2 Managerial Implications

The findings of this study will be informative for hotel managers in four- and five-star hotels in Turkey. Although the EEU-related findings contradicted the BSC-related proposition, this was perhaps not surprising given the sit-

uation of the COVID-19 pandemic. First, this study noted that in the presence of EEU, decentralised decision-making is used in hotels and acts as an antecedent of the BSC and the subsequent hotel performance. The inference from these outcomes is that hotel managers should continue to maintain a decentralised structure due to its flexibility, which enables them to delegate some responsibility to middle managers to ensure efficient operational processes during the times of crisis.

COVID-19 has provided an important lesson for managers in understanding the importance of operational resilience and has shown managers continue to implement decentralised decision-making. Furthermore, the BSC must be designed to match environmental requirements. EEU has reached a completely different dimension due to the pandemic and has resulted in challenges to the effective implementation of the BSC. This is mainly because environmental conditions are changing quickly and unpredictably. Therefore, this study recommends that hotel managers should continue to closely monitor the external environment and any emerging developments to be fully responsive. Furthermore, in accordance with the changes in the environment, managers should revise performance measures and include new measures (e.g. post-crisis measures and specific health and safety measures) in the BSC in a timely manner to align the system with the strategy of the hotel (Sainaghi et al., 2017). For example, many hotels have faced staffing problems due to the pandemic, and managers now urgently need to incorporate up-to-date performance indicators in their BSC to ensure that they collect relevant information and follow up on this issue. Obtaining such information through the BSC is critical for hotels' quick recovery. These issues underline the importance of more frequent performance reviews to minimise the impacts of any crisis on hotels. Senior management should pay critical attention and constantly scan the environment—both internally and externally—for potential issues to manage any future crisis and turn it into a strategic success. Finally, considering COVID-19 has drastically challenged the hotel industry's operations, hotel managers should develop innovative approaches to their products and services and integrate them into their PMS to ensure that they follow up their progress in their adaptation to changing environmental conditions and customer preferences.

5.3 Limitations and Directions for Future Research

The results of this study are subject to several limitations. First, the study only included four- and five-star hotels in Turkey, meaning the outcomes cannot be considered conclusive. Conducting future studies in other countries and settings might reveal different results due to structural differences in management and different external environmental effects, such as the differing impacts of COVID-19 in different countries. Second, the questions were based on the perceptions of the respondents, although this type of research is generally conducted using this method. A further limitation is related to the response rate. At the time the data were collected, the global COVID-19 pandemic had led to the closure of many hotels, creating an obstacle to data collection. In addition, a longitudinal study could enhance the understanding of this subject over time and provide more accurate results. Therefore, longitudinal studies can be developed in the future, considering the beginning of the pandemic. Taking into account that the impact of COVID-19 continues to reshape the hotel industry, future studies could consider the frequency of measuring performance to assess organisational progress during difficult times. Finally, although the relationships described in Figure 1 are comprehensive, no study can be regarded as fully exhaustive; thus, the framework should not be regarded as such. Future studies could include other contextual factors, such as advanced service technology, to extend this study's model with the aim of obtaining additional insights.

Bionotes

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