Show me the money: the magic of the marketing and finance interface to drive financial performance in hospitality operations

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Chapter 2

Customer Satisfaction as a Profit Driver in Upscale Hotel Chains: A Cross-Level Analysis of Financial Performance

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"A satisfied customer is the best business strategy of all"

– Michael LeBoeuf

This chapter aims to develop an understanding of how customer satisfaction impacts hotel financial performance at the industry level.[3] Using aggregated firm-level data of six US public hotel chains, the study develops a set of hypotheses. We deploy publicly available archival data on listed corporations, which were collected manually, and utilize a regression-based moderated mediation model. The model integrates financial and marketing data and examines the complex dynamic relationships underlying hotels' long-term market performance. This cross-level model aligns operating, accounting, and stock market perspectives by establishing relationships between variables across different levels of analysis. Conceptually, customer traffic, price, and customer satisfaction are seen as profit drivers, each of which plays different roles in a firm's financial performance. The analysis of 17-years firm-level panel data (2004-2020) seeks to understand how customer-level drivers interact with economic output at different performance levels. In line with previous studies in other industries that used American Customer Satisfaction Index (ACSI), we identify customer satisfaction as an important positive predictor of stock market performance and accounting profitability, but observe a negative or no contemporaneous effect on gross operating customer-level profitability. In contrast, price is a positive profit driver in the short-term, but has no effect on long-term performance. These findings indicate that in upscale lodging, customers prioritize positive experience independent from the price point, which together with sufficient sales volume drive long-term financial success. Therefore, for listed hotel chains it is important to have realistic expectations about the absence of immediate effects on profit while ensuring continuous satisfaction performance that will pay back in future returns, to provide practical guidance on which performance levels accounting reports will effectively reveal the effects of customer satisfaction, which will not.

[3] This chapter is largely based on Demydyuk, G. V., & Carlbäck, M. (2024). Balancing short-term gains and long-term success in lodging: The role of customer satisfaction and price in hotel profitability model. *Tourism Economics, 30*(4), 844-875. https://doi.org/10.1177/13548166231199156.

2.1 Introduction

Long-term profitability in the hotel industry is complex and requires careful consideration and management of numerous factors. Hoteliers aim to maximize profits by covering costs, adding margins, and increasing sales volumes but face challenges due to unstable demand, high fixed costs, and product perishability. Modern pricing tools utilize complex digital decision-support systems powered by artificial intelligence. However, hoteliers must also consider the customer experience which can be difficult to observe or measure. The lack of relevant customer information in control systems further complicates decision making (Andersson & Carlbäck, 2009; Assaf & Magnini, 2012; Ittner & Larcker, 1998a; McManus, 2013). As such, it is often unclear whether investments to enhance hotel standards truly increase profitability (Homburg et al., 2005; McManus & Guilding, 2008; Sun & Kim, 2013), or whether providing basic accommodations and focusing on short-term performance, possibly at lower prices, are more profitable (Croes & Semrad, 2012; Kimes & Renaghan, 2011; O'Neill & Mattila, 2006).

The relationship between customer-level behavioral outcomes and firm-level financial outcomes has been a topic of interest for many years (Kumar et al., 2013; Mittal et al., 2023; Shields & Shields, 2005). Over time, support for the relationship between behavioral and financial outcomes has been strong (Ittner & Larcker, 1998a; Mittal et al., 2023; Srinivasan et al., 2005; Sun & Kim, 2013). Therefore, the focus has shifted towards understanding *how* behavioral outcomes interact with other economic variables to influence profitability from various perspectives (Banker & Johnston, 2007). Without this understanding, decision making is incomplete, leading to asymmetric outcomes and hindering the integration of insights into information systems (Ahmad et al., 2021; Assaf & Magnini, 2012; Banker & Johnston, 2007; Ingenbleek, 2014; Shields & Shields, 2005; R. E. Smith & Wright, 2004).

Revenue and profit drivers, a small but crucial research stream in managerial accounting, provide a valuable framework for analyzing how customer-level and product-level operational factors interact with each other and affect financial performance (Banker & Johnston, 2007; Shields & Shields, 2005). Although studies in accounting, economics, and marketing have identified several drivers of interest, many have focused on single-level analyses.[4] For example, the marketing literature primarily examines customer-level drivers,

[4] Such analysis – at the single product, customer, organization, or industry level – can limit our understanding in a variety of ways, as it defines use of theory, selection of variables and analytical tools, and interpretation of revenue driver–profit relationships (Luft and Shields, 2003; Shields and Shields, 2005; Herschung, Mahlendorf and Weber, 2018).

the accounting literature largely views production and sales volume drivers from a costing perspective, and the economics and accounting literature examines the effects of markups on profitability. Consequently, a fragmented body of knowledge, with sometimes contradictory theoretical contributions, has resulted in disparate definitions of variables and insufficient data, complicating generalization and further development.

The lack of systemized information also complicates and hinders the integration of customer-level metrics into information systems. Traditional pricing and management control techniques often ignore important factors, such as customer satisfaction and repeat patronage, leading to suboptimal decisions in pricing and resource allocation. Knowing the value of products to customers can help firms manage their price-demand relationship more profitably (Ingenbleek, 2014; G. Smith, 2021; van der Rest & Roper, 2013). By exploring the interaction between key pricing elements, such as price, sales quantity, and customer satisfaction, insights can be gained into firm-level financial outcomes. As such, there is a growing demand for research that connects customer value, operations, profitability, and capital market perspectives, necessitating models that incorporate more than one perspective (Banker & Johnston, 2007; Shields & Shields, 2005).

This study integrates marketing and finance perspectives to examine the long-term market performance in the hotel industry. We develop a moderated mediation model to examine the complex and dynamic relationships underlying hotel performance at the operating, accounting, and stock market levels. Specifically, we examine the conditional indirect effect of room price and customer satisfaction on the relationship between sales-volume and long-term market performance via short-term profitability and, the conditional direct effect of room price and customer satisfaction on the relationship between sales volume and long-term market performance. The analysis is based on financial and operating data from six publicly traded US-based hotel corporations over a 17-years period between 2004 and 2020. Seeking to contribute to the cumulative body of accounting knowledge, we report the type of relationship, sign, additivity, directness, and timing of the significant effects for all performance drivers using the framework proposed by Shields and Shields (2005).

2.2 Literature Review

Shields and Shields (2005) and Banker and Johston (2007) note that profitability drivers, such as sales quantity, price, and customer satisfaction, have received ample research attention, but mainly from a single perspective. However, single-level approaches, such as

those from the product, customer, organization, or industry perspective, can limit understanding in a variety of ways (Luft & Shields, 2003).

Shields and Shields (2005) call for a bottom-up cross-level analysis to investigate the effects of customer- and product-level variables on firm-level performance. Congruently, Banker and Johnston (2007) call for accounting and economics models that incorporate variables capturing customer value, as well as the complex interrelationships between revenues, costs, and asset values that determine profitability and shareholder value. They also emphasize the need to account for endogeneity and simultaneity in the models and draw more fully and tightly on economic, strategic management, and behavioral theories.

This study explores the effects of sales quantity, price, and customer satisfaction on financial performance at three levels. Drawing on insights from marketing, accounting, and economics literature we analyze the relationship between room nights sold and profitability at the operating and accounting levels, and shareholder value at the stock market level. We develop, test, and analyze a cross-level bottom-down model to better understand the complex relationships underlying hotels' long-term market performance. As noted by Shields and Shields (2005) and Luft and Shields (2003), valid cross-level models require interactions involving multiple independent variables, as well as moderators at the dependent variable level, to unravel the direct and indirect effects of drivers on performance (Shields & Shields, 2005). Furthermore, to provide systematic information for theory building, we document and compare the effects following the framework suggested by the seminal study of Shields & Shields (2005) and report the type of relation, sign, additivity, directness, and timing of the significant effects.

This section reviews multiple cross-level relationships based on existing practices and research to develop the hypotheses and explain the moderated mediation model.

2.2.1 Sales Volume Drivers and Performance

According to microeconomic theories, such as Producer Theory and its profit maximization focus, classical managerial accounting defines a revenue driver as "a variable, such as volume, that causally affects revenues" (Horngren et al., 2012, p.68). In marketing research, revenue is often operationalized and measured as sales volume, which is a product of unit sales price and sales quantity (Shields & Shields, 2005). To achieve profit maximization, the lodging industry widely applies revenue management, which is grounded in the Price Theory of microeconomics, postulating the market forces of supply and demand determine

the logical price point for a particular good or service at any given time (e.g., Landsburg, 2013).

In practice, hotel managers have two typical levers of revenue and profit enhancement: (1) price, to manage demand, and (2) capacity utilization, expressed in occupancy rates (Kimes & Renaghan, 2011).[5] Thus, on the operating level, the number of room nights sold and the price for each room-night can be defined as two main sales volume drivers. As the hotel industry is characterized by high fixed costs and perishable inventory, an increase in sales is expected to drive (accounting) profits. Although operating and accounting profits are typically regarded as short-term or contemporaneous[6] performance outcomes, sustained sufficiency and positivity can substantially contribute to a firm's superior long-term stock market performance.

The current academic debate, mainly in revenue and pricing management literature, is represented by two opposing views on the profitability effects of room-rate discounting as a tool for demand (quantity) stimulation. The first view suggests that discounting does not work in the lodging industry (Enz et al., 2016; Poldrugovac et al., 2019; Singh et al., 2014), whereas the second advocates that short-term discounting makes sense under certain conditions (Croes & Semrad, 2012; Demydyuk et al., 2015; O'Neill & Mattila, 2006).

In the hypothesis formulation, we first follow the logic that lower prices drive room demand, which has more potential to cover fixed costs and contribute to profitability than higher room rates. O'Neill and Mattila (2006) found that from a two-year sample of 1,954 hotels, those with higher occupancy achieved greater efficiency, allowing them to be more profitable. The authors emphasize that occupancy is a larger profit contributor than ADR,[7] particularly under recessionary conditions, which also holds true in the restaurant sector (Demydyuk et al., 2015). Croes and Semrad (2012) provided a more rigorous statistical assessment than the use of average room rates, as the effect of discounting on financial performance may quickly dilute the data. The authors recommend moderate discounting for periods of seasonal demand shocks to correct the demand disequilibrium. Thus, we measure sales quantity by the number of room nights sold and hypothesize the following:

H1 *Sales quantity has a positive effect on short-term profitability (operating profitability and accounting profitability).*

H2 *Sales quantity has a positive effect on long-term market performance.*

5 A ratio of room-night sold and room-nights available.
6 Reflected in the same reporting period, usually a year (e.g., Shields & Shields, 2005).
7 Average Daily Rate is the average paid for room-nights sold in a given time period.

Contrary to O'Neill and Mattila (2006), Singh et al. (2014) provide empirical evidence that during the great recession of 2007-2009, room price, rather than occupancy, appears to be a stronger predictor and better measure of accounting profitability. Based on a 10-years sample of 4,000 different hotels in Europe, Enz, Canina, and van der Rest (2016) also show that, regardless of macroeconomic conditions, hotels with higher ADR benefited from higher relative RevPAR[8] despite lower comparative occupancies. This relationship was also confirmed for the camping industry (Poldrugovac et al., 2019).

The use of price to manage demand in hotel revenue management assumes that it acts as a moderating factor. Thus, Kimes and Renaghan (2011) and Croes and Semrad (2012) demonstrate that lower prices will stimulate demand (sales) and, consequently, more profitable capacity utilization, whereas higher prices will lead to reduced demand and, due to the perishability of unsold rooms, reduce profitability. In this context, price functions as a moderating variable that helps balance supply and demand at an equilibrium point, influencing whether an increase/decrease in sales quantity translates into higher profitability (Karni & Levin, 1994). A clear understanding of this relationship is important due to the high costs and low margins of the hotel industry (Cugini et al., 2007). The following hypothesis is about the potential moderating effects of price on the traffic-profitability relationship:

H3 Room price moderates the relationship between sales quantity and short-term profitability (operating profitability and accounting profitability), such that depending on the level of room price, the moderation effect could be either:

H3.1 Positive,
H3.2 Negative.

The concept of (market) pricing power suggests that a firm's ability to charge higher prices without affecting sales volume can provide a competitive advantage and increase its market value (Syverson, 2019; J. Zhu et al., 2021). This is particularly relevant in the context of hotels operating at low margins because the ability to charge higher prices can help secure profitability during cost shocks. Investors often react positively to such developments, as reflected by their stock market performance (Datta et al., 2011). When market power is absent, a price increase may result in a sales drop and, consequently, lower

[8] Revenue Per Available Room is a ratio of ADR and hotel occupancy.

profitability and stock market performance. There are other potential capital market effects related to product prices. Therefore, the following hypothesis is formulated:

H4 Room price moderates the relationship between sales quantity and the long-term market performance, such that depending on the level of room price, the moderation effect could be either:

H4.1 Positive,
H4.2 Negative.

Van der Rest and Harris (2008) argued that pricing effects in hotels are influenced by individual demand patterns and cost structures, particularly the contribution margin. Thus, lowering prices necessitates greater demand elasticity to protect profitability, and the concern surrounding discounts is their potential adverse impact on hotels' financial performance. Studies in multiple disciplines have analyzed the impact of product prices on revenue and profit. However, this relationship is worth revisiting in the complex cross-level model that we apply in the current study to test endogenous interrelations.

2.2.2 Customer Satisfaction and Performance

Customer satisfaction has received central attention in marketing literature. This was summarized by Mittal et al. (2023) as "a customer's evaluative summary judgment of consumption experiences that is associated with customer- and firm-level outcomes" (p.2), and according to the study framework, can be influenced by a number of behavioral antecedents. In contrast to marketing, which views customer-level outcomes as mediating firm-level outcomes, accounting views customer satisfaction as having additive effects on revenue, meaning that its effect on profitability is not influenced by the value of other variables (Ittner & Larcker, 1998a; Shields & Shields, 2005).

In economics, price theory suggests that hotels adjust room prices to capture as much consumer surplus as possible using product and service differentiation to align prices with customer value. Accounting research on revenue and profit drivers is dominated by customer-associated metrics as independent variables, following and treating customer value as the difference between a customer's willingness to pay and the market price, which is known as consumer surplus (Banker & Mashruwala, 2007; R. E. Smith & Wright, 2004; Syverson, 2019). Examples from the hotel industry include customer satisfaction and the level of complaints versus changes in revenue and operating profit (Banker, Potter, et al., 2000; Srinivasan et al., 2005), customer and employee satisfaction, and customer mix versus financial performance (W. G. Kim et al., 2013).

The marketing pricing literature, on the other hand, presents an ongoing debate between economic rationality and the belief that satisfied customers are willing to pay more without reducing their consumption (Enz et al., 2016; Ingenbleek, 2014; van der Rest & Roper, 2013). Based on the interactive effect of customer satisfaction on the traffic-profitability relationship, we formulate the following hypothesis:

H5 *Customer satisfaction moderates the relationship between sales quantity and short-term profitability, such that depending on the level of customer satisfaction, the moderation effect could be either:*

H5.1 Positive,
H5.2 Negative.

There are also potential moderating effects from the long-term financial performance perspective. Following reviews of the extant literature on both marketing and accounting (e.g., Herschung et al., 2018; Mittal et al., 2023), firm-level outcomes also include capital market performance. In terms of measurement, the American Customer Satisfaction Index (ACSI) is widely used in academic research as a predictor of the financial and stock performance of publicly traded companies because of its availability for large companies (Aksoy et al., 2008; Fornell et al., 2006; Ittner et al., 2009; Ittner & Larcker, 1998a). According to Mittal et al. (2023), who reviewed 40 years of marketing research dedicated to customer satisfaction in the context of a firm's financial performance, the proportion of empirical results for customer satisfaction measures (including ACSI) was considerably smaller than that for customer-level outcomes. This was specifically the case for studies that used ACSI as a moderator of firm-level outcomes.

Although distinct reasons are sometimes tested in finance, customer satisfaction also interacts with sales quantity and stock market performance. Previous studies have shown that firms with good ACSI outperform the market with low systematic risk, and that the market quickly responds to the release of information on large increases in satisfaction (Aksoy et al., 2008; Fornell et al., 2006; Ittner et al., 2009). However, the predictive power of the ACSI for long-term returns remains uncertain (Ittner et al., 2009). To test this relationship, we hypothesized the following:

H6 *Customer satisfaction moderates the relationship between sales quantity and long-term market performance such that depending on the level of customer satisfaction, the moderation effect could be either:*

H6.1 Positive,
H6.2 Negative.

While customer satisfaction is considered important, the impact of the American Customer Satisfaction Index (ACSI) on performance in various industries, such as service and manufacturing, remains inconclusive (Anderson et al., 1997, 2004). Owing to the nature of ACSI, most analyses are based on big datasets across industries, with limited research on the hospitality industry. The only known exception is Sun and Kim (2013), who analyzed an aggregate dataset of hotel, restaurant, and airline stocks, although their study is not without the limitations mentioned above. Empirical research linking ACSI to financial and stock performance in hospitality, particularly the lodging industry, is lacking.

2.2.3 Short-Term Profitability

Our cross-level perspective would be incomplete, without a profitability—stock market performance relationship. In addition to practical wisdom in finance, prior research has found that hotels' reported annual accounting profitability is reflected in their long-term stock market performance (Hsu & Jang, 2008; S. Lee et al., 2019; Mao & Gu, 2007). Therefore, the final hypotheses of this study were formulated as follows:

H7 *Short-term profitability – operating profitability and accounting profitability – has a positive effect on long-term market performance.*

H8 *Short-term profitability – operating profitability and accounting profitability in parallel – mediates the relationship between sales quantity and long-term market performance.*

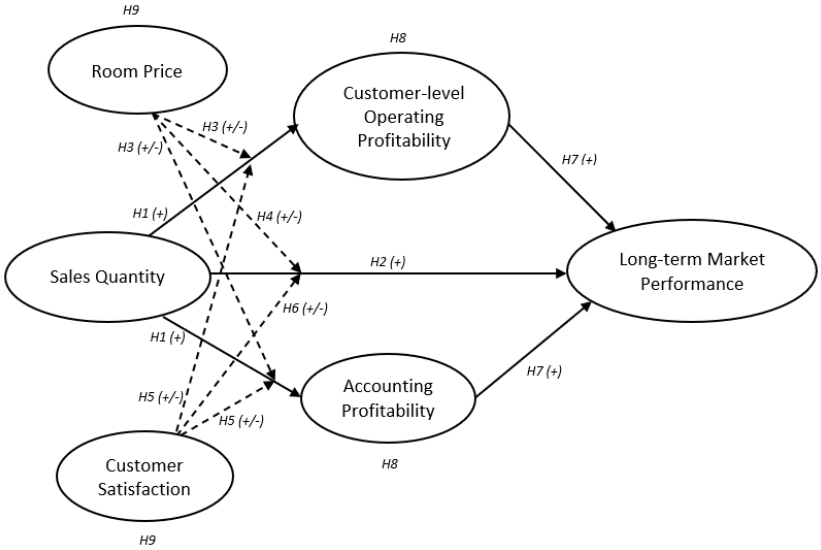
H9 *The indirect effect of sales quantity on long-term market performance through short-term profitability is moderated by room price and customer satisfaction, such that the direction and magnitude of the direct and indirect effect depends on the level of room price and customer satisfaction.*

2.2.4 Conceptual Framework

Figure 2 presents a conceptual diagram of hotels' long-term market performance using a bottom-up cross-level approach (from operating revenue drivers to market performance), integrating marketing, accounting, and finance perspectives. The (cross)-level concepts are sales quantity and room price at the product level, customer satisfaction at the customer level, and operating and accounting profitability at the firm level. Long-term market performance reflects both the firm and industry levels. Specifically, the framework visualizes the conditional indirect effect of room price and customer satisfaction on the relationship between sales quantity and long-term market performance via short-term profitability and, the conditional direct effect of room price and customer satisfaction on

the relationship between sales quantity and long-term market performance (Kosová et al., 2013; S. Lee et al., 2019; O'Neill & Mattila, 2006).

Figure 2: Conceptual diagram for hypotheses testing



2.3 Methodology

2.3.1 Data

This study uses publicly available data from US-based traded corporations specializing in hotel operations. The analysis is based on annual observations of six hotel chains for 2004–2020. An initial list of companies in the "Consumer Services/Leisure and Travel/Hotels and Casinos" category was obtained from the NASDAQ and NYSE listing directories. The resulting list of US-listed companies was downsized after removing overlaps, companies with unavailable data, pure casinos, mountain skiing resorts, theaters, and dining operators. Thus, the final sample consisted of six hotel companies with all necessary data for the analysis of financial and operational performance for all years. Although three of the six companies were delisted before 2020, the operating and accounting data for Starwood Corporation were reported by the Marriott Group (Table 2), and the remaining sample covers a representative part of the market. The final dataset consisted of 78 annual observations for six firms, with data available from to 2004-2020 (See Table 2).

The annual filings Form 10-K from the SEC's EDGAR online database were used to estimate the financial ratios and operating metrics. The data include room revenues and

direct costs, other revenues and expenses associated with the hotel business, segment operating income, and net income obtained from Consolidated Statements of Earnings and Supplementary Data. Stockholder equity and total assets were collected from Consolidated Balance Sheets. Information about industry-specific operating variables, including quarterly and annual values, such as the number of owned and leased hotels under their own management, number of room nights available, average daily rate (ADR), and room occupancy rate, was also collected from SEC filings, mainly the Management Discussion and Analysis (MD&A) section.

Table 2: Hotel companies included in the sample. Annual observations (2004-2020)

N	Name Ticker	Number of system wide hotels as of 31.12.2020	Number of owned or leased hotels as of 31.12.2020	Rating class	ADR average USD	Years of data available	Obser-vations
1	Marriott International Inc. **MAR**	7,642	66	Luxury, premium, select	144	2004-2020	17
2	Starwood Hotel & Resorts Worldwide, Inc. **HOT**	996	32	Luxury and upper upscale, superior comfort and extended stay	210	2004-2015	12
3	Hilton Worldwide Holdings, Inc. **HLT**	6,478	61	Luxury, Upscale, Upper Midscale	136	2010-2020	8
4	Hyatt Hotels Corporation **H**	982	38	Luxury and upper upscale, upscale and extended stay	187	2008-2020	14
5	Red Lion Hotels Corporation **RLH**	1,062	6	Midscale	84	2004-2019	16
6	Morgans Hotel Group Co. **MHGC**	11	3	Boutique	274	2005-2015	11
		17,171	**206**		**172**		**78**

2.3.2 Computation of Variables

The vast majority of variables were not readily available and required computation. This section explains the computations that were performed, followed by an overview of all the variables used in the moderated mediation model. Table 3 lists and systematically summarizes the variables by performance level (stock market, accounting, and operating). All estimates used data from hotels under their own management (franchisees were not included).

Independent variable (X). The number of Room Nights Sold (NIGHTSS) was used as a proxy to measure sales quantity. As this was not directly reported, we computed

this variable by multiplying the number of room nights available by the occupancy rate %, which are the values available in the MD&A section of the 10-K statements.

Dependent variable (Y). To estimate the long-term market performance for each of the six hotel companies, two alternative metrics were used independently as dependent variables in a series of tests. Namely, we computed the risk-adjusted market performance of individual stocks over a period of ten years (RA10) and Tobin's q (TQ), which is the ratio between a physical asset's market value and its replacement value. In doing so, we offset the drawbacks of each metric and let them complement each other in the analysis.

The computation of RA10 begins with the monthly rate of return *R* for equity investors in month *t,* which is:

$$R_t = \frac{(P_{t+1}) - P_t + D_t}{P_t}, \qquad (1)$$

where P_t is the closing price for month *t* and D_t is the dividend payment in month *t*. Annual or ten-year returns are calculated by taking the mean values of the corresponding monthly returns (RR10). To obtain the systematic risk of individual stocks, we estimate beta for each firm using the standard single-index market model (Sharpe, 1964):

$$R_{it} = \alpha_i + \beta_i R_{mt} + e_{it}, \qquad (2)$$

where R_{mt} is the monthly return for the S&P 500 over the same period used for each company and β_i from the regression is the beta estimate (BETA10). To complete the RA10 estimation, the annual and ten-year return values were adjusted for risk by dividing the average annual return for all years (RR10) by the individual companies' betas (BETA10).

The second computation of the long-term market performance of each of the six hotel companies is Tobin's q ratio (TQ), a measure of excess market performance generated through intangibles, such as superior service or management competencies. It provides a concrete measure of realized value beyond standard operational outcomes, to which stock returns and betas are particularly sensitive, mitigating RA10's limitations, such as its reliance on stock market conditions (Brigham & Ehrhardt, 2024). Because TQ is intrinsic to current and expected firm performance, as well as comparable across firms and grounded in economic theory (Anderson et al., 2004) regressor in organizational economics (Erickson & Whited, 2006). To calculate TQ as a ratio of market value added and replacement cost of assets (Lindenberg & Ross, 1981), the following equation was used:

$$q = \frac{MVA - Shareholders\ Equity}{Total\ Assets}, \qquad (3)$$

where MVA is Market Value Added, calculated as Market Capitalization (total number of shares outstanding multiplied by share price to date) less Total Shareholder equity, and Total Assets are values recorded on the balance sheet at the end of the period.

Mediator variables (M). Two mediators proxying short-term profitability were included in parallel: one at the operating level and one at the accounting performance level. For the first mediator M_1, at the operating performance level, we computed a metric for the customer-level operating profitability associated with profit per customer. Unfortunately, the number of unique customers was not available in the annual reports nor was it available from other public sources or third parties. Thus, we were unable to calculate the gross operating profit per unique customer, which would incorporate the length of stay and auxiliary revenues per customer. To address this limitation, we assumed that each paying customer stayed one night and occupied one room, thus equaling the number of customers to the number of room nights sold. Such a practice is commonly used by cruise lines, where, alongside lower berth capacity, occupancy rate, and number of unique passengers, they report the number of passenger cruise days separately and as a denominator for various economic values.

We used the Gross Operating Profit per room night sold (GPNIGHTSS) as a proxy for customer-level operating profitability by dividing the gross operating profit from the profit and loss statements by NIGHTSS in the respective periods (M_1). Gross Operating Profit is the difference between the Total Revenue from hotel operations and the direct hotel segment costs, as specified in the 10-K statement.

For the second mediator M_{2i}, at the accounting performance level, we calculate three accounting profitability metrics. For this purpose, we used net income value (obtained from Consolidated Statements of Earnings and Supplementary Data), stockholder equity, and total assets (both collected from the Consolidated Balance Sheets). We then calculate the Net Profit Margin (NPM = M_{21}), Return on Assets[9] (ROA = M_{22}), and Return on Equity[10] (ROE = M_{23}) as three commonly used financial ratios for accounting performance analysis (Horngren et al., 2012).

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[9] In defining financial ratios, we follow Brigham and Ehrhardt (2024), whose definitions are among the most widely used in in shareholder-oriented analyses of corporate stock market performance (Higgins et al., 2023; Ross et al., 2019). Return on Assets (Brigham & Ehrhardt, 2024, p. 101):

$$\text{ROA} = \frac{\text{Net income available to common stakeholders}}{\text{Total assets}}.$$

[10] Return on Equity (Brigham & Ehrhardt, 2024, p. 101):

$$\text{ROE} = \frac{\text{Net income available to common stakeholders}}{\text{Common Equity}}.$$

Table 3: Operationalization of conceptual model and computation of variables

Level of performance	Variable		Measure of	Explanation
		Independent variable X:		
Operating	**NIGHTSS**	Room-Nights Sold, annual	Sales quantity	Room-nights sold from owned properties, 10-K
		Dependent variables Y:		
Capital market	**RA10Y**	Return average divided over Beta for 2014-2020	Long term risk-adjusted stock market performance	Mean 10-year return of individual stock (Equation 2) divided over 10-year Beta (Equation 3), 2004-2020
Capital market	**TQ**	Tobin's q ratio, annual	Market value of equity	MVA over Total Assets (Equation 4), 2004-2020
		Mediator variable M_1:		
Operating	**GPNIGHTSS**	Gross Profit per Room-Night Sold, annual	Customer-level operating profitability	Segment gross operating profit by room-nights sold
		Mediator variables M_{2i}:		
Accounting	**NPM**	Net Profit Margin, annual	Accounting profitability	Net Profit divided by Revenue
Accounting	**ROE**	Return on Equity, annual	Accounting profitability	Net Profit divided by Shareholders Equity
Accounting	**ROA**	Return on Assets, annual	Accounting profitability	Net Profit divided by Total Assets
		Moderator variables W and Z:		
Operating	**ADR**	ADR, Average Daily Rate, annual	Price per room	Rooms Revenue divided by room-nights sold, 10-K
Operating	**ACSI**	American Customer Satisfaction Index, annual	Customer satisfaction	Benchmarks published annually, ACSI website
		Control variables (e_i):		
	NHOTELS	Number of owned and managed Properties	Size of a corporation	Properties under own management, 10-K
	RPP	Rooms per Property, average	Size of an average property	Ratio of Rooms and own Properties under own management

Moderator variables (W + Z). The first moderator (*W)*, room price, measured as the average daily rate (ADR), was readily available from the MD&A section of 10-K statements. For the second moderator (*Z)*, customer satisfaction, the ACSI variable data were collected for hotels from the Industrial Benchmarks on the American Customer Satisfaction Index (LLC) website. ACSI reports annual individual benchmarks for eight major hotel companies and individual brands. Aggregated company benchmarks were readily available for Marriott, Starwood, Hilton, and Hyatt. For the Red Lion and Morgans Hotels, no benchmarks on brand or company basis were reported, therefore the "All Others" aggregate index for smaller hoteliers was applied to both of these companies.

Control variables (e). We included company size – the number of owned and leased hotels under their own management (NHOTELS = e_1) – as a control variable, which was readily available in the MD&A section of the 10-K statements. To reflect the average property size operated by these firms, we added the number of rooms per property (RPP = e_2) as a second control variable, which we estimated by dividing the total number of rooms available by the NHOTELS. The rationale was that larger hotels have more facilities that offer additional revenue streams, also impacting the type of travelers and, thus, the anticipated ADR.

2.3.3 Analytical Approach

For the conditional process analysis, we used the PROCESS 4.0 macro for SPSS 28 (Hayes, 2022). All variables were standardized (mean zero, standard deviation of one). The main analysis was preceded by a descriptive analysis, to provide an understanding of the characteristics of the sample, and a correlation analysis, to verify the selection of variables and to identify multicollinearity issues.

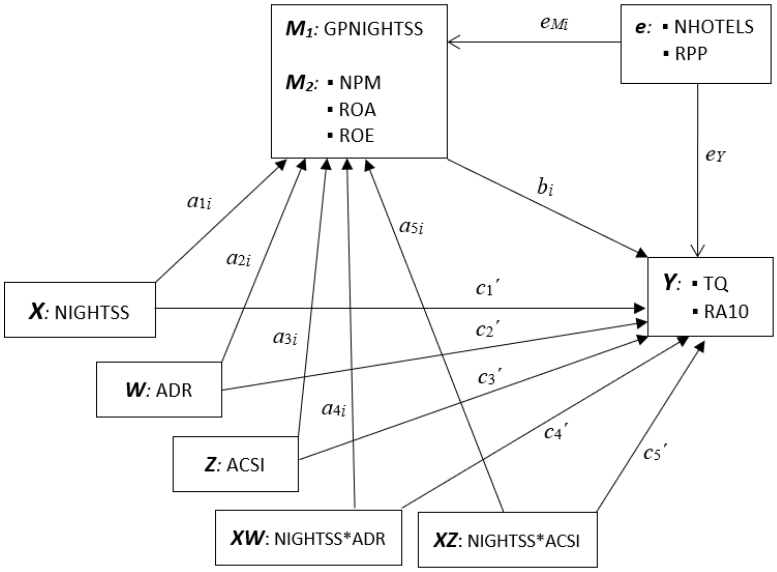
To test the hypotheses of this study, we developed a moderated mediation model, as presented in the literature section in Figure 2, and operationalized it using the variables listed in Table 3. A regression-based conditional process analysis was performed, as shown in Figure 3. The model is an additive[11] moderated mediation model with two moderators and two parallel mediators that measures the following effects (4):

$$\text{Conditional indirect effect of } X \text{ on } Y \text{ through } M_i = (a_{1i} + a_{4i} W + a_{5i} Z)\, b_i \qquad (4)$$

$$\text{Conditional direct effect of } X \text{ on } Y = c_1' + c_4' W + c_5' Z$$

[11] Additive, or additive multiple moderation includes models with more than one moderator of a variable's effect. Here, a multiple moderation model, in which two variables moderate two single focal antecedent's effects in parallel (e.g., Hayes 2022, pp. 336-339), is used.

Figure 3: Statistical diagram of moderated mediation (Model 10)



The model tests the direct and indirect effects of room-nights sold (NIGHTSS) on long-term market performance (RA10 and TQ) through short-term profitability (GPNIGHTSS, and NPM, ROA, or ROE). It also tests moderation effects by adding room price as the first moderator (ADR = W) and customer satisfaction as the second moderator (ACSI = Z) in paths a and c'. To test for moderated mediation, the index of moderated mediation was used to analyze whether the effect of NIGHTSS on RA10 (respectively TQ) via GPNIGHTSS and NPM (resp. ROA, ROE) depends on the level of room price ADR and customer satisfaction ACSI in paths a and c'. To control for size effects, NHOTELS and RPP are added to the model (links e_{mi} and e_y).

PROCESS 4.0 uses bootstrapping to assess indirect effects. To judge the significance of the indirect effect, PROCESS 4.0 uses 95% bootstrap confidence intervals constructed using 5.000 bootstrap samples (Hayes, 2022). The indirect effect represents the effect of NIGHTSS on RA10/TQ that runs through the mediator variable (i.e., GPNIGHTSS and NPM, ROA, and ROE).

2.3.4 Descriptive Analysis

The main analysis was preceded by an interpretation of descriptive statistics and correlations. Table 4 presents summary statistics for the variables included in the analysis.

Table 4: Descriptive statistics. Annual observations (2004-2020)

	N	Minimum	Maximum	Mean	Std. Deviation
NIGHTSS Room nights sold	78	259,121	17,167,860	4,164,783	3,986,645
RA10Y Risk-adjusted return 10Y, %	78	0.02	1.32	0.6074	0.3418
RR10Y Stock return 10 years, %	78	0.06	1.74	0.9284	0.4778
BETA10 Stock beta 10Y	78	1.32	2.50	1.6779	0.3834
TQ Tobin's q ratio	78	0.09	2.81	0.8712	0.6553
GPNIGHTSS Gross Profit per Room-Night Sold	78	-111.52	159.73	57.78	44.014
NPM Net Profit Margin	78	-0.44	0.17	-0.003	0.129
ROA Return on Assets	78	-0.17	0.14	0.015	0.060
ROE Return on Equity	78	-3.99	48.29	0.654	5.539
ADR Average Daily Rate	78	68.94	327.00	179.76	61.358
ACSI American Customer Satisfaction Index	78	70	82	76.9	2.861
NHOTELS Properties under own management	78	3	155	52	38
RPP Rooms per property average	78	174	485	303	94
Valid N (listwise)	78				

As Table 4 shows, long-term market performance indicators are low, typical for hotels, and positive. This indicates that despite the COVID-related disruptions in 2020 (Carter et al., 2022; C. C. Lee et al., 2023; Sheel, 2020), the hotel stock was able to recover from the long-term perspective applied in this study. The risk-adjusted stock return varies between 0.02 and 1.32 with a mean value of 0.6074 and a standard deviation of 0.3418. The Q ratio (TQ) has a mean value below one (0.8712), meaning that, on average, hotel companies can be a less attractive investment compared to other industries, whereas the maximum value in the sample is 2.81. The financial performance data for the period 2004-2020 are clearly influenced by COVID, which is expressed by the minimum net profit margin of -44% and the gross profit per room night sold at **$**-111.52. In terms of pricing, ADR varies from $68.94 to $327.00 per night. Firms vary from relatively small, with three properties under their own management and 259,121 room nights sold, to very large, with 155 properties and 17.167,860 room nights. The average size of a single property varies across firms from 174 to 485 rooms. The ACSI for customer satisfaction fluctuated between 70 and 82 out of 100.

Correlations are presented in Table 5. Overall, the analysis highlights that customer traffic (NIGHTSS) and satisfaction (ACSI) are associated with better financial performance (short- and long-term), whereas higher prices or per-night operating profits do not necessarily improve financial outcomes. Specifically, there is a significant positive correlation between NIGHTSS, profitability, and stock performance. Room price (ADR) has a significant negative correlation with risk-adjusted stock market performance (RA10), while the correlation is non-significant between ADR and TQ and the accounting profitability metrics NPM, ROA, and ROE. No significant correlation was observed

between ADR and NIGHTSS, indicating that increased occupancy is not necessarily related to higher pricing. ACSI, in turn, is positively correlated with stock market performance and accounting profitability, while the correlation between ASCI and operating profitability is insignificant. GPNIGHTSS has a negative correlation with RA10Y and a nonsignificant correlation with TQ and accounting profitability, suggesting that operating efficiency alone is not a reliable driver of investor confidence.

Table 5: Correlations based on annual observations (2004-2020)

	NIGHTSS	RA10Y	TQ	GPNIGHTSS	NPM	ROA	ROE	ADR	ACSI	NHOTELS	RPP
NIGHTSS	1										
RA10Y	**0.531****	1									
TQ	**0.251***	**0.629****	**1**								
GPNIGHTSS	0.089	**-0.380****	-0.081	1							
NPM	**0.464****	**0.530****	**0.388****	0.114	1						
ROA	**0.363****	**0.569****	**0.562****	0.121	**0.910****	1					
ROE	-0.084	-0.175	-0.069	0.066	-0.288*	-0.235*	1				
ADR	0.093	**-0.240***	0.019	**0.655****	-0.172	-0.080	0.114	1			
ACSI	**0.344****	**0.625****	**0.519****	-0.167	**0.231***	**0.364****	-0.102	0.145	1		
NHOTELS	**0.932****	**0.593****	**0.305****	-0.107	**0.482****	**0.390****	-0.117	-0.077	**0.354****	1	
RPP	**0.347****	-0.090	-0.118	**0.405****	-0.070	-0.069	0.035	**0.762****	**0.226***	0.121	1

***. Correlation is significant at the 0.01 level (2-tailed).*
**. Correlation is significant at the 0.05 level (2-tailed).*
Listwise N=78
*Note: **bold** numbers are the correlations with p<0.05.*

Additionally, firm and property size play important supporting roles. Thus, the size of a firm NHOTELS is significantly positively correlated with the stock market and accounting performance, as well as with the ACSI, highlighting the advantage of scale. Similarly, the average size of the property RPP shows a significant positive correlation with both ADR and ACSI, as well as with GPNIGHTSS, indicating that larger properties may command higher prices, achieve greater customer satisfaction, and generate more profit per night.

2.4 Findings

2.4.1 Short-term profitability

Table 6 reports the first step of the moderated mediation analysis, focusing on the *a-path* (X → M), that is, the relationship between sales quantity on the one hand, and operating performance (as reflected by GPNIGHTSS) and accounting performance (as reflected by

NPM, ROA, and ROE) on the other hand.[12] First of all, based on an analysis without interaction terms (see Table A1 in the Appendix) we conclude that sales quantity (NIGHTSS) has a significant and positive relationship with operating profitability (GPNIGHTSS). Regarding accounting profitability, based on an analysis without interaction terms (see Table A1 in the Appendix), we do not observe a significant relationship between sales quantity on the one hand and NPM, ROA, and ROE on the other hand. Taken together, Hypothesis 1 is partially supported, that is, only for operating profitability.

Table 6: First step of the moderated mediation analysis (X → M)

Path		coeff.	t	p	R-sq
Outcome Variable: Operating profitability **GPNIGHTSS (M_1)**					
$X \rightarrow M_1$:	Sales quantity NIGHTSS	**1.9436*** **	5.4316	0.0000	0.6695
$W \rightarrow M_1$:	Room price ADR	**0.6603** **	3.2875	0.0016	
$X*W \rightarrow M_1$:	NIGHTSS x ADR	-0.2913	-1.3947	0.1675	
$Z \rightarrow M_1$:	Customer satisfaction ACSI	**-0.2183** **	-2.8178	0.0063	
$X*Z \rightarrow M_1$:	NIGHTSS x ACSI	**-0.2023***	-2.2169	0.0299	
$e_1 \rightarrow M_1$:	Number of own hotels NHOTEL	**-1.6579*** **	-5.0902	0.0000	
$e_2 \rightarrow M_1$:	Rooms per property RPP	**-0.6310*** **	-4.5814	0.0000	
Outcome Variable: Accounting Profitability **NPM (M_{21})**					
		coeff.	t	p	R-sq
$X \rightarrow M_{21}$:	Sales quantity NIGHTSS	0.6171	1.2825	0.2039	0.4025
$W \rightarrow M_{21}$:	Room price ADR	**0.5940***	2.1995	0.0312	
$X*W \rightarrow M_{21}$:	NIGHTSS x ADR	**0.8270** **	2.9450	0.0044	
$Z \rightarrow M_{21}$:	Customer satisfaction ACSI	0.0455	0.4364	0.6639	
$X*Z \rightarrow M_{21}$:	NIGHTSS x ACSI	-0.2194	-1.7877	0.0782	
$e_1 \rightarrow M_{21}$:	Number of own hotels NHOTEL	-0.1119	-0.2555	0.7991	
$e_2 \rightarrow M_{21}$:	Rooms per property RPP	-0.3664	-1.9785	0.0518	
Outcome Variable: Accounting Profitability **ROA (M_{22})**					
		coeff.	t	p	R-sq
$X \rightarrow M_{22}$:	Sales quantity NIGHTSS	0.8238	1.6890	0.0957	0.3860
$W \rightarrow M_{22}$:	Room price ADR	**0.6522***	2.3822	0.0199	
$X*W \rightarrow M_{22}$:	NIGHTSS x ADR	**0.6833***	2.4002	0.0190	
$Z \rightarrow M_{22}$:	Customer satisfaction ACSI	**0.2345***	2.2206	0.0296	
$X*Z \rightarrow M_{22}$:	NIGHTSS x ACSI	**-0.3308** **	-2.6589	0.0097	
$e_1 \rightarrow M_{22}$:	Number of own hotels NHOTEL	-0.4086	-0.9204	0.3605	
$e_2 \rightarrow M_{22}$:	Rooms per property RPP	**-0.5421** **	-2.8876	0.0052	
Outcome Variable: Accounting Profitability **ROE (M_{23})**					
		coeff.	t	p	R-sq
$X \rightarrow M_{23}$:	Sales quantity NIGHTSS	0.1444	0.2372	0.8132	0.0246
$W \rightarrow M_{23}$:	Room price ADR	0.0524	0.1532	0.8787	
$X*W \rightarrow M_{23}$:	NIGHTSS x ADR	-0.1661	-0.4673	0.6417	
$Z \rightarrow M_{23}$:	Customer satisfaction ACSI	-0.0663	-0.5030	0.6166	
$X*Z \rightarrow M_{23}$:	NIGHTSS x ACSI	0.0640	0.4119	0.6817	
$e_1 \rightarrow M_{23}$:	Number of own hotels NHOTEL	-0.1958	-0.3531	0.7251	
$e_2 \rightarrow M_{23}$:	Rooms per property RPP	-0.0913	-0.3893	0.6982	

*Note: N=78. * p < 0.05, ** p < 0.01, *** p<0.001 (two-tailed),* ***bold*** *numbers are the coefficients with p<.05.*

[12] Table 6 includes the interaction terms NIGHTSS*ADR and NIGHTSS*ASCI. The results without interaction terms can be found in the Appendix (See Table A1).

Table 6 further focuses on Hypotheses 3 and 5. Regarding the moderation effect of room price (ADR), we find a significant and positive interaction term NIGHTSS*ADR for ROA and NPM. For GPNIGHTSS and ROE, we did not find any significant interaction terms. Regarding the moderation effect of satisfaction (ACSI), we observed a significant and negative coefficient of the interaction term NIGHTSS*ACSI for GPNIGHTSS and ROA. This implies that the positive relationship between sales quantity and operating profitability is significantly larger for hotel companies with lower customer satisfaction (ACSI). Hence, Hypotheses 3 and 5 are partially supported.

2.4.2 Long-term market performance

Table 7 (with RA10 as the dependent variable) and Table 8 (TQ as the dependent variable) present the results of the second step of the moderated moderation analysis, examining the *b-path* and *c'-path* in detail.

Hypothesis 2 focuses on the relationship between the sales quantity and long-term market performance. In a model without interaction terms (see Table A2 in the Appendix) we conclude that sales quantity (NIGHTSS) has a significant and positive relationship with risk-adjusted stock returns (RA10) in all types of mediator models (i.e. M2 = NPM, ROA, ROE). Regarding market value (TQ), based on an analysis without interaction terms (see Table A2 in the Appendix), we do not observe a significant relationship between sales quantity on the one hand and TQ. Taken together, Hypothesis 2 is partially supported for RA10, and it is not supported for TQ, which are taken as the dependent variables.

Hypotheses 4 and 6 focus on the moderation effect of room price (ADR) and satisfaction (ACSI) on long-term market performance, respectively. The interaction terms NIGHTSS*ADR and NIGHTSS*ACSI are not significant in Tables 7 and 8. Hence, Hypotheses 4 and 6 are not supported.

Focusing on Hypothesis 7, the results show that operating profitability (GPNIGHTSS) has a significant negative relationship with long-term market performance (RA10 in Table 7 and TQ in Table 8). For accounting profitability, we find a significant and positive effect of NPM and ROA on long-term market performance, and a non-significant coefficient for ROE. In other words, sales quantity and accounting performance have a positive relationship with long-term market performance, whereas operating performance has a negative relationship.

We now focus on some non-hypothesized relationships, zooming in on room price (ADR) first. When excluding the interaction terms NIGHTSS*ADR and NIGHTSS*ACSI from the model specification (Table A2 in the Appendix), ADR is positively related to long-term market performance RA10 in the NPM model only and has no significant relationships in models that include interaction terms (Table 7). When TQ is used as the dependent variable, ADR has a significant positive relationship with TQ in all accounting models (NPM, ROA, ROE) without interaction terms (Table A3); however, in models that contain interaction (Table 8), ADR again has no significant relationships with TQ. In this case, additional analyses revealed that a one standard deviation increase in ADR is related to a 0.29 SD increase in RA10 (Table A2) and 0.67 SD in TQ (Table A3) in models using NPM at the accounting performance level.

Table 7: Second step of the moderated mediation analysis (M→Y. Dependent Variable – RA10)

Outcome Variable: Long-term stock performance **RA10 (Y)**					
Path		coeff.	t	p	R-sq
X→Y :	Sales quantity NIGHTSS	**1.1251****	3.0542	0.0032	0.7656
M_1→Y :	Operating profit GPNIGHTSS	**-0.5833*****	-5.0354	0.0000	
M_{21}→Y :	Accounting profitability **NPM**	**0.4413*****	5.1227	0.0000	
W→Y :	Room price ADR	0.0446	0.2410	0.8103	
X*W→ Y :	NIGHTSS x ADR	-0.3897	-1.9407	0.0564	
Z→ Y :	Customer satisfaction ACSI	**0.3916*****	5.4673	0.0000	
X*Z→ Y :	NIGHTSS x ACSI	-0.0042	-0.0523	0.9585	
e_1→ Y :	Number of own hotels NHOTEL	**-0.7642***	-2.2767	0.0260	
e_2→ Y :	Rooms per property RPP	**-0.4084****	-3.0433	0.0033	
Outcome Variable: Long-term stock performance **RA10 (Y)**					
		coeff.	t	p	R-sq
X→ Y :	Sales quantity NIGHTSS	**0.9561****	2.6715	0.0094	0.7747
M_1→Y :	Operating profit GPNIGHTSS	**-0.5424*****	-4.9659	0.0000	
M_{22}→Y :	Accounting profitability **ROA**	**0.4392*****	5.4810	0.0000	
W→ Y :	Room price ADR	-0.0067	-0.0368	0.9707	
X*W→ Y :	NIGHTSS x ADR	-0.3129	-1.6490	0.1038	
Z→ Y :	Customer satisfaction ACSI	**0.3176*****	4.2859	0.0001	
X*Z→ Y :	NIGHTSS x ACSI	0.0525	0.6476	0.5194	
e_1→ Y :	Number of own hotels NHOTEL	-0.5663	-1.7597	0.0830	
e_2→ Y :	Rooms per property RPP	**-0.3063***	-2.3111	0.0239	
Outcome Variable: Long-term stock performance **RA10 (Y)**					
		coeff.	t	p	R-sq
X→ Y :	Sales quantity NIGHTSS	**0.8873***	2.0758	0.0417	0.6798
M_1→Y :	Operating profit GPNIGHTSS	**-0.3156***	-2.6298	0.0106	
M_{23}→Y :	Accounting profitability **ROE**	-0.0700	-0.9930	0.3242	
W→ Y :	Room price ADR	0.1337	0.6192	0.5379	
X*W→ Y :	NIGHTSS x ADR	0.0416	0.1961	0.8451	
Z→ Y :	Customer satisfaction ACSI	**0.4654*****	5.6779	0.0000	
X*Z→ Y :	NIGHTSS x ACSI	-0.0424	-0.4497	0.6543	
e_1→ Y :	Number of own hotels NHOTEL	-0.3835	-1.0032	0.3193	
e_2→ Y :	Rooms per property RPP	**-0.4076***	-2.5885	0.0118	

Note: N=78.
** p < 0.05, ** p < 0.01, *** p<0.001 (two-tailed)*

Second, we focus on customer satisfaction (ACSI). ACSI is positively associated with both dependent variables, RA10 and TQ, for all accounting variables (NPM, ROA, and ROE). These effects are opposite to those observed at the operating performance level, where ACSI is negatively associated with GPNIGHTSS. A model specification without interaction terms revealed that a one-SD increase in ASCI was associated with a 0.39 SDs increase in RA10 (Table A2) and 0.42 SD increase in TQ (Table A3). These results indicate that the effects of customer satisfaction are insignificant in the short term; however, in the long term it consistently acts as a significant positive driver of long-term market performance.

Table 8: Second step of the moderated mediation analysis (M→Y. Dependent Variable – TQ)

Path		coeff.	t	p	R-sq
Outcome Variable: Long-term stock performance **TQ (Y)**					
X→Y :	Sales quantity NIGHTSS	**1.2501***	2.3414	0.0222	0.5076
M_1→Y :	Operating profit GPNIGHTSS	**-0.4025***	-2.3978	0.0192	
M_{21}→Y :	Accounting profitability **NPM**	**0.3994****	3.1987	0.0021	
W→Y :	Room price ADR	0.3998	1.4907	0.1407	
X*W→ Y :	NIGHTSS x ADR	-0.4764	-1.6369	0.1063	
Z→ Y :	Customer satisfaction ACSI	**0.4097*****	3.9464	0.0002	
X*Z→ Y :	NIGHTSS x ACSI	-0.1491	-1.2688	0.2088	
e_1→ Y :	Number of own hotels NHOTEL	**-1.0338***	-2.1250	0.0372	
e_2→ Y :	Rooms per property RPP	**-0.8245*****	-4.2386	0.0001	
Outcome Variable: Long-term stock performance **TQ (Y)**					
		coeff.	t	p	R-sq
X→ Y :	Sales quantity NIGHTSS	**1.1251***	2.2791	0.0258	0.5713
M_1→Y :	Operating profit GPNIGHTSS	**-0.4304****	-2.2791	0.0057	
M_{22}→Y :	Accounting profitability **ROA**	**0.5167*****	4.6749	0.0000	
W→ Y :	Room price ADR	0.3184	1.2662	0.2098	
X*W→ Y :	NIGHTSS x ADR	-0.5073	-1.9380	0.0568	
Z→ Y :	Customer satisfaction ACSI	**0.3006****	2.9407	0.0045	
X*Z→ Y :	NIGHTSS x ACSI	-0.0714	-0.6388	0.5251	
e_1→ Y :	Number of own hotels NHOTEL	**-0.9136***	-2.0581	0.0434	
e_2→ Y :	Rooms per property RPP	**-0.7083*****	-3.8752	0.0002	
Outcome Variable: Long-term stock performance **TQ (Y)**					
		coeff.	t	p	R-sq
X→ Y :	Sales quantity NIGHTSS	1.0159	1.7877	0.0783	0.4341
M_1→Y :	Operating profit GPNIGHTSS	-0.1534	-0.9619	0.3396	
M_{23}→Y :	Accounting profitability ROE	-0.0242	-0.2582	0.7970	
W→ Y :	Room price ADR	0.4738	1.6509	0.1034	
X*W→ Y :	NIGHTSS x ADR	-0.0776	-0.2753	0.7839	
Z→ Y :	Customer satisfaction ACSI	**0.4806*****	4.4102	0.0000	
X*Z→ Y :	NIGHTSS x ACSI	-0.1847	-1.4733	0.1453	
e_1→ Y :	Number of own hotels NHOTEL	-0.6702	-1.3188	0.1917	
e_2→ Y :	Rooms per property RPP	**-0.8159*****	-3.8970	0.0002	

Note: N=78.
** p < 0.05, ** p < 0.01, *** p<0.001 (two-tailed)*

Finally, we zoom in on main relationships at different levels of moderators. The results for probing the interaction terms at different levels of moderators are summarized in the final steps of the moderated mediation analysis, as shown in Table 9 (Y = RA10) and Table 10 (Y = TQ). The results show that the positive effects of sales quantity depend on the levels of room price and customer satisfaction (high level +1SD, average, low level -1SD). These results remain consistent for RA10 and TQ used as the outcome variable, except for hotel companies with above-average room prices. Hence, the positive relationship between sales quantity (NIGHTSS) and operating profitability (GPNIGHTSS) is significantly larger for hotel companies with higher room prices (ADR + 1SD) and lower customer satisfaction (ACSI – 1SD). To summarize, at the operating performance level the effect of sales quantity is positive, but diminishes as customer satisfaction increases. At the accounting performance level, the effects of sales quantity are also positive, but only when room prices are above average. These effects diminish as customer satisfaction increases. Finally, at the stock market level, the significant positive effect of sales quantity on long-term market performance diminishes with higher room price and customer satisfaction levels when NPM and ROA (but not ROE) are included in the main model.

2.4.3 Indirect effects and moderated mediation

Table 9 (RA10) and Table 10 (TQ) summarize the final step of the moderated mediation analysis. We report on Hypotheses 8 and 9 by examining the indirect effect of sales quantity and long-term market performance via operating profitability (GPNIGHTSS) and accounting profitability (NPM, ROA, or ROE), moderated by room price (ADR) and customer satisfaction (ACSI).

Focusing on the operating performance first, the upper panel of Table 9 indicates that the indirect effect of sales quantity (NIGHTSS) on long-term market performance (RA10) through customer-level profitability (GPNIGHTSS) is moderated by customer satisfaction (ACSI), and not by room price (ADR). That is, the index of moderated mediation for customer satisfaction (ACSI) is significantly different from zero (index I = 0.1180, confidence interval CI = [0.0021; 0.3361]). This index is not significant for ADR (I = 0.1699, CI = [-0.0476; 0.5435]). Verifying these results for TQ as another measure of long-term market performance, the upper panel of Table 10 suggests a consistently negative indirect effect that remains significant at all levels of the moderators. However, the mediation itself is not moderated, as the indices for room price and customer satisfaction

are non-significant. Therefore, for TQ, moderated mediation via operating profitability (GPNIGHTSS) is not supported.

Continuing with accounting profitability, the evidence for moderated mediation differs. In sum, the indirect effect via accounting profitability depends on the level of room price, and, partially, on customer satisfaction. We find evidence of moderated mediation for room price (ADR) in models with NPM and ROA as mediators. This can be seen in the significant indices of moderated mediation for ADR in the RA10 models in Table 9 (I_{NPM} = 0.3650, [CI = 0.1064; 0.8367] and I_{ROA} = 0.3001, CI = [0.0359; 0.6573]) and TQ models in Table 10 (I_{NPM} = 0.3303, CI = [CI = 0.0856; 0.7174]; I_{ROA} = 0.3530, CI = [CI = 0.0468; 0.7847]). These results suggest that the indirect positive effect of sales quantity on long-term market performance through accounting profitability (NPM and ROA) is significant only at higher room price levels. At higher price levels (+1 SD), a hotel company with sales quantity increasing by one SD is expected to experience a 0.54 SD increase in risk-adjusted stock return and a 0.49 increase in TQ ratio, given the higher net profit margin achieved.
Further, focusing on ROA, we also find evidence of moderated mediation for both moderators. In addition to price, the index of moderated mediation for customer satisfaction (ACSI) is also significant and again negative (I_{RA10}= -0.1453, CI = [-0.3265; -0.0391], and I_{TQ} = -0.1709, CI = [-0.4081; -0.0486]). These ROA results show that the indirect positive effect of sales quantity on long-term market performance through ROA is significant only at higher levels of room price and customer satisfaction, whereas the indirect effect via NPM does not depend on customer satisfaction. Moderated mediation via return on assets (ROA) is supported for both moderators, while moderated mediation via net profit margin (NPM) is only supported for one moderator (ADR). As Table 9 and Table 10 indicate, there is no moderated mediation when ROE is included as a measure of accounting profitability for both moderators.

To summarize, Hypotheses 8 and 9 are partially supported. Operating profitability mediates the relationship between sales quantity and long-term market performance (RA10 and TQ), and the indirect effect is consistently negative. This mediation is moderated by customer satisfaction (RA10 model only) but not by room price, independent of their levels. Accounting profitability also mediates this relationship (NPM and ROA models only), and the indirect effect is positive. However, this mediation does exist only at high levels of price and customer satisfaction. This mediation is moderated by room price (NPM and ROA models) and customer satisfaction (ROA model only).

The results of all hypotheses tests are summarized in Table 11.

Table 9: Final step of the moderated mediation analysis (Dependent Variable – RA10)

	Sales quantity NIGHTSS (X) → operating profitability **GPNIGHTSS (M_1)** → long-term risk-adjusted stock performance RA10 (Y)		
Moderator variable	Path a_{11}	R^2-change	Indices of partial moderated mediation:
Room price ADR (XW)	-0.2913	X*W 0.0092	0.1699
Customer satisfaction ACSI (XZ)	**-0.2023***	X*Z **0.0232***	**0.1180***
		both (X) **0.0296***	
Effects of the focal predictor at values of W and Z:	Direct effect path c_1'	Indirect effect $a_{11} * b_1$	
Low value (-1 *SD*)	**1.5190****	**-1.4216****	
Mean value (0 SD)	**1.1251****	**-1.1336****	
High value (+1 *SD*)	**0.7311***	**-0.8457****	

	Sales quantity NIGHTSS (X) → accounting profitability **NPM (M_{21})** → long-term risk-adjusted stock performance RA10 (Y)		
Moderator variable	Path a_{12}	R^2-change	Indices of partial moderated mediation:
Room price ADR (XW)	**0.8270****	X*W **0.0740****	**0.3650****
Customer satisfaction ACSI (XZ)	-0.2194	X*Z 0.0273	-0.0968
		both (X) **0.1121***	
Effects of the focal predictor at values of W and Z:	Direct effect path c_1'	Indirect effect $a_{12} * b_2$	
Low value (-1 SD)	**1.5190****	0.0042	
Mean value (0 SD)	**1.1251****	0.2723	
High value (+1 SD)	**0.7311***	**0.5405***	

	Sales quantity NIGHTSS (X) → accounting profitability **ROA (M_{22})** → long-term risk-adjusted stock performance RA10 (Y)		
Moderator variable	Path a_{13}	R^2-change	Indices of partial moderated mediation:
Room price ADR (XW)	**0.6833***	X*W **0.0505***	**0.3001***
Customer satisfaction ACSI (XZ)	**-0.3308****	X*Z **0.0620****	**-0.1453****
		both (X) **0.1259***	
Effects of the focal predictor at values of W and Z:	Direct effect path c_1'	Indirect effect $a_{13} * b_3$	
Low value (-1 SD)	**1.2165***	0.2070	
Mean value (0 SD)	**0.9561****	0.3618	
High value (+1 SD)	**0.6957***	**0.5166***	

	Sales quantity NIGHTSS (X) → accounting profitability **ROE (M_{23})** → long-term risk-adjusted stock performance RA10 (Y)		
Moderator variable	Path a_{14}	R^2-change	Indices of partial moderated mediation:
Room price ADR (XW)	-0.1661	X*W 0.0030	0.0116
Customer satisfaction ACSI (XZ)	0.0640	X*Z 0.0023	-0.0045
		both (X) 0.0059	
Effects of the focal predictor at values of W and Z:	Direct effect path c_1'	Indirect effect $a_{14} * b_4$	
Low value (-1 SD)	0.8881	-0.0173	
Mean value (0 SD)	**0.8873***	-0.0101	
High value (+1 SD)	**0.8865***	-0.0030	

Note: N=78. Path a_{11} – path from sales volume driver (NIGHTSS) to operating profitability (GPNIGHTSS). path a_{12} – path from sales volume driver (NIGHTSS) to return on investment (NPM). path a_{13} – path from sales volume driver (NIGHTSS) to return on investment (ROA). path a_{14} – path from sales volume driver (NIGHTSS) to return on investment (ROE); path b_1 – path from operating profitability (GPNIGHTSS) to stock market performance (TQ). path b_2 – path from return on investment (NPM) to stock market performance (TQ). path b_3 – path from return on investment (ROA) to stock market performance (TQ). path b_4 – path from return on investment (ROE) to stock market performance (TQ). path c´- path from sales volume driver (NIGHTSS) to stock market performance (TQ). * $p < 0.05$. ** $p < 0.01$. *** $p<0.001$ (two-tailed)

Table 10: Final step of the moderated mediation analysis (Dependent variable – TQ)

	Sales quantity NIGHTSS (X) → operating profitability **GPNIGHTSS (M_1)** → long-term stock performance Tobin's q TQ (Y)		
Moderator variable	Path a_{1}	R^2-change	Indices of partial moderated mediation:
Room price ADR (XW)	-0.2913	X*W 0.0092	0.1173
Customer satisfaction ACSI (XZ)	**-0.2023***	X*Z **0.0232***	0.0815
		both (X) **0.0296***	
Effects of the focal predictor at values of W and Z:	Direct effect path c_1'	Indirect effect $a_{1} * b_{1}$	
Low value (-1 *SD*)	**1.8756***	**-0.9811****	
Mean value (0 SD)	**1.2501***	**-0.7824****	
High value (+1 *SD*)	0.6246	**-0.5837****	

	Sales quantity NIGHTSS (X) → accounting profitability **NPM (M_{21})** → long-term stock performance Tobin's q TQ (Y)		
Moderator variable	Path a_{12}	R^2-change	Indices of partial moderated mediation:
Room price ADR (XW)	**0.8270****	X*W **0.0740****	**0.3303****
Customer satisfaction ACSI (XZ)	-0.2194	X*Z 0.0273	-0.0876
		both (X) **0.1121***	
Effects of the focal predictor at values of W and Z:	Direct effect path c_1'	Indirect effect $a_{12} * b_{2}$	
Low value (-1 SD)	**1.8756***	0.0038	
Mean value (0 SD)	**1.2501***	0.2465	
High value (+1 SD)	0.6246	**0.4891***	

	Sales quantity NIGHTSS (X) → accounting profitability **ROA (M_{22})** → long-term stock performance Tobin's q TQ (Y)		
Moderator variable	Path a_{13}	R^2-change	Indices of partial moderated mediation:
Room price ADR (XW)	**0.6833***	X*W **0.0505***	**0.3530***
Customer satisfaction ACSI (XZ)	**-0.3308****	X*Z **0.0620****	**-0.1709****
		both (X) **0.1259***	
Effects of the focal predictor at values of W and Z:	Direct effect path c_1'	Indirect effect $a_{13} * b_{3}$	
Low value (-1 SD)	**1.1763***	0.2435	
Mean value (0 SD)	0.8238	0.4256	
High value (+1 SD)	0.4713	**0.6078***	

	Sales quantity NIGHTSS (X) → accounting profitability **ROE (M_{23})** → long-term stock performance Tobin's q TQ (Y)		
Moderator variable	Path a_{14}	R^2-change	Indices of partial moderated mediation:
Room price ADR (XW)	-0.1661	X*W 0.0030	0.0040
Customer satisfaction ACSI (XZ)	0.0640	X*Z 0.0023	-0.0015
		both (X) 0.0059	
Effects of the focal predictor at values of W and Z:	Direct effect path c_1'	Indirect effect $a_{14} * b_{4}$	
Low value (-1 SD)	1.2782	-0.0060	
Mean value (0 SD)	1.0159	-0.0035	
High value (+1 SD)	0.7535	-0.0010	

Note: N=78. Path a_{1} – path from sales volume driver (NIGHTSS) to operating profitability (GPNIGHTSS). path a_{12} – path from sales volume driver (NIGHTSS) to return on investment (NPM). path a_{13} – path from sales volume driver (NIGHTSS) to return on investment (ROA). path a_{14} – path from sales volume driver (NIGHTSS) to return on investment (ROE); path b_{1} – path from operating profitability (GPNIGHTSS) to stock market performance (RA10). path b_{2} – path from return on investment (NPM) to stock market performance (RA10). path b_{3} – path from return on investment (ROA) to stock market performance (RA10). path b_{4} – path from return on investment (ROE) to stock market performance (RA10). path c´- path from sales volume driver (NIGHTSS) to stock market performance (RA10). * $p < 0.05$. ** $p < 0.01$. *** $p<0.001$ (two-tailed)

Table 11: Overview of hypotheses test results

H#	Hypothesis	Results	Presented
H1	Sales quantity has a positive effect on short-term profitability, specifically at operating and accounting performance levels.	Operating performance: **supported.** Accounting performance: **not supported**	Table 6
H2	Sales quantity has a positive effect on long-term market performance.	RA10: **supported**. TQ: **not supported**	Table 7 Table 8
H3	Room price moderates the relationship between sales quantity and short-term profitability, such that the moderation effect could be either positive (H3.1) or negative (H3.2) depending on the level of room price.	Operating performance: **not supported.** Accounting performance: **partially supported:** H3.1 (+) supported for NPM and ROA, not supported for ROE	Table 6
H4	Room price moderates the relationship between sales quantity and the long-term market performance, such that the moderation effect could be either positive or negative depending on the level of room price.	**Not supported**	Table 7 Table 8
H5	Customer satisfaction moderates the relationship between sales quantity and short-term profitability, such that the moderation effect could be either positive (H5.1) or negative (H5.2) depending on the level of customer satisfaction.	Operating performance: H5.2 (-) **supported.** Accounting performance: **partially supported:** H5.2 (-) supported for ROA, not supported for NPM and ROE)	Table 6
H6	Customer satisfaction moderates the relationship between sales quantity and long-term market performance, such that the moderation effect could be either positive (H6.1) or negative (H6.2) depending on the level of customer satisfaction.	**Not supported**	Table 7 Table 8
H7	Short-term profitability has a positive effect on long-term market performance, specifically at the operating and accounting performance levels.	Operating performance: **supported** on RA10; **partially supported** for TQ (i.e., not for ROE). Accounting performance: **partially supported** on RA10 and TQ (i.e., not ROE)	Table 7 Table 8
H8	Short-term profitability mediates the relationship between sales quantity and long-term market performance.	Operating performance: **supported** (i.e., negative mediation (-) of GPNIGHTSS). Accounting performance: **partially supported** (i.e., positive mediation (+) of NPM and ROE at high value of moderators; not supported for ROE)	Table 9 Table 10
H9	The effect of sales quantity on long-term market performance through short-term profitability is moderated by room price and customer satisfaction, such that the direction and magnitude of the direct and indirect effect depend on the level of room price and customer satisfaction.	Operating performance: **partially supported** (i.e., (-) for customer satisfaction in RA10 model only, but not room price). Accounting performance: **partially supported**, (i.e., (+) for ADR on NPM and ROA, (-) for customer satisfaction on ROA, in both models RA10 and TQ)	Table 9 Table 10

Table 12: Significant effects of financial performance drivers

Driver	Effect	Sign	Relationship	Additivity	Directness	Timing
room-nights sold → operating performance	confirmed on GPNIGHTSS	+	direct, conditional on customer satisfaction	interactive*	direct	contemporaneous***
room-nights sold → long-term stock-market performance	confirmed on RA10 and TQ	+	direct, conditional on price and customer satisfaction	interactive	direct	leading****
room **price** → operating profitability	confirmed	+	direct, unconditional	additive**	direct	contemporaneous
room **price** → accounting profitability	confirmed on NPM and ROA	+	direct, unconditional	additive	direct	contemporaneous
customer satisfaction → operating performance	confirmed on GPNIGHTSS	-	direct, unconditional	additive	direct	contemporaneous
customer satisfaction → long-term stock-market performance	confirmed on RA10 and TQ	+	direct, unconditional	additive	direct	leading
price on room-nights → accounting profitability relationship	confirmed in NPM and ROA models	+	moderation	additive	indirect	contemporaneous
Customer satisfaction on room-nights sold → operating profitability relationship	confirmed on GPNIGHTSS	-	moderation	additive	indirect	contemporaneous
Customer satisfaction on room-nights sold → accounting profitability relationship	confirmed on NPM and ROA	-	moderation	additive	indirect	contemporaneous
Room-nights sold → through **operating profitability** → on stock-market performance	confirmed on GPNIGHTSS	-	mediation	interactive	indirect	leading
Room-nights sold → through **accounting profitability**→ on stock-market performance	confirmed on ROA and NPM	+	mediation	interactive	indirect	leading

** Interactive effects are conditional on the value of another variable*
*** Additive effects are unconditional on the value of over variables*
**** Contemporaneous effects are within the same measurement and reporting period*
***** Leading effects are in future reporting periods*

2.5 Discussion

This study examines the market performance of six hotel firms over a 17-year period from 2004 to 2020, focusing on the interaction effects of room price and customer satisfaction on the relationship between sales quantity and long-term market performance through short-term profitability at the operating and accounting performance levels. The study includes three perspectives on financial performance: operating, accounting, and the stock market. Significant moderated mediation effects were found (Table 11). The findings suggest that the relationships between sales quantity, room price, and customer satisfaction are more pronounced at the operating and stock-market performance levels, and less so at the accounting performance level. The predictive ability of room price is stronger in the short-term horizon (operating and accounting performance), where customer satisfaction may seem unimportant or detrimental (Cugini et al., 2007; Niraj et al., 2008; Terpstra & Verbeeten, 2014). However, from the perspective of long-term stock market performance, customer satisfaction and customer traffic are important positive predictors of financial success in the hotel industry (Aksoy et al., 2008; Fornell et al., 2006; Ittner & Larcker, 1998a). These findings have several theoretical and practical implications.

2.5.1 Theoretical Implications

In response to the call for research by Shields & Shields (2005) and following their framework, Table 12 summarizes the significant effects and characteristics of all profit drivers. Specifically, this table reports the type of relationship, sign, additivity, directness, and timing of each effect. The table does not report the linearity and directionality aspects as they are conditioned to the model. First, the conditional process analysis applied in this study consisted of a set of linear regressions assuming (at least approximately) linear relationships (Hayes, 2022). Second, typical of accounting models, a revenue or profit driver affects revenue without being affected by it (Herschung et al., 2018; Luft & Shields, 2003; Shields & Shields, 2005); hence, the causality tested in this study is unidirectional. According to Shields and Shields (2005), the most frequently identified relationship between revenue drivers and revenue relations in quantitative empirical studies is the positive linear additive direct contemporaneous relationship. By examining profit drivers and their relationship with stock market performance, this study reveals distinct driver-performance relations that differ from those found in studies focusing on revenue drivers.

The analysis reveals differences between sales quantity, price and customer satisfaction in relation to financial performance, first from the timing perspective (Table 12), and at different performance levels. Sales quantity and customer satisfaction have contemporaneous effects on operating and leading effects on stock market performance, whereas the effects of price are only contemporaneous. Thus, the positive direct effects of room price (ADR) on financial outcomes are only significant from a short-term perspective (operating and accounting performance), that is, customer-level operating profitability (GPNIGHTSS) and accounting profitability (NPM, ROA). From the long-term stock market perspective, price has no significant direct effect on performance (RA10 and TQ).

Customer traffic, as measured by sales quantity (NIGHTSS), appears to be a positive direct leading indicator of stock market performance (RA10, TQ) conditional on price (ADR) and customer satisfaction (ACSI), and a positive contemporaneous driver of customer-level profitability (GPNIGHTSS). Specifically, under the condition of higher price and higher customer satisfaction, a 44.013-unit increase in NIGHTSS (one SD) is related to (about) 0.003% change in the risk-adjusted stock return and (about) a 0.734-points increase in Tobin's q (0.01 and 1.12 SDs respectively), varying across models using different profitability variables. Importantly, the contemporaneous positive direct effect of NIGHTSS on operating profitability of 85.39-dollar in GPNIGHTSS (1.94 SDs) is conditional only on customer satisfaction. In other words, with an increase in sales quantity, a hotel company can maximize customer-level operating profitability at lower customer satisfaction, as with an increase in ACSI, operating profitability decreases (e.g., Niraj et al., 2008). Additionally, the positive effects of customer traffic are only significant at the operating and stock market performance levels but not at the accounting level.

Customer satisfaction (ACSI) has a negative contemporaneous effect on GPNIGHTSS, with a 2.86-point increase in the ACSI index (one SD) related to a 9.38-dollar decrease in GPNIGHTSS (0.22 SDs), and a positive contemporaneous effect on ROA of 1.38%-points (0.23 SDs). However, in contrast to price, the leading effects of customer satisfaction on stock market performance are positive for both RA10 and TQ. Specifically, a 2.86-point increase in the ACSI index (one SD) is associated with a meaningful[13] increase in the risk-adjusted stock return RA10: 0.13%-point increase in the NPM model (0.39 SDs), 0.11%-points in the ROA model (0.32 SDs), and 0.16%-points (0.47 SDs) in the ROE model, as well as in the TQ ratio of market value: NPM model, 0.269 points (0.41 SDs); ROA, 0.197 points (0.30 SDs); and ROE, 0.315 points (0.48 SDs).

[13] Given the low RA10 in the sample between 0.02% and 1.32%, and TQ between 0.09 and 2.81 (Table 4).

These results contradict those of Ittner *et al*. (2009), who found that ACSI scores predict future operating income, but there is no evidence that ACSI predicts long-run returns. At the same time, our results are in line with the previous findings of Aksoy *et al*. (2008) that the market responds to the ACSI in the longer term.

Therefore, this study extends the extant empirical evidence in the ACSI research to the lodging industry. Our findings validate previous studies that employ larger aggregate databases across various industries, as we demonstrate a positive additive direct leading relationship between the ACSI and stock market performance within the lodging industry (Aksoy et al., 2008; Fornell et al., 2006; Ittner & Larcker, 1998a). In contrast to Sun and Kim's (2013) research on the hospitality and tourism industry, our study, which relied solely on manually collected hotel data, found significant positive effects of ACSI on Tobin's q and RA10 and also reported conditions for room price and customer satisfaction, for these positive effects to be significant. Different hospitality industries feature different price-traffic relationships, and customer satisfaction impacts these relationships differently (Anderson et al., 1997, 2004). Thus, industry-specific effects may not be observable in the aggregate samples (Messner, 2016). For instance, gross profit per room night sold (GPNIGHTSS) is negatively related to risk-adjusted stock market performance, whereas a similar metric was consistently positive in a restaurant sample (Demydyuk et al., 2015).

Notably, the moderating effects of both ADR and ACSI were mainly significant in the first step of the moderated mediation analysis (with short-term profitability in path a_i as a dependent variable), but not for the direct traffic—stock market performance relationships (path *c'*). Similar to Hsu and Jang's (2008) findings, NPM and ROA exhibit significant positive relationships with risk-adjusted stock performance in all models and both direct and mediating relationships. Return on equity (ROE) in turn, did not show statistically significant relationships with other variables. Based on the regression coefficients and model fit, ROA emerges as the most useful accounting profitability metric for predicting hotel financial performance, while NPM can predict it less often, and ROE has the least predictive power.

To conclude, this study identifies sales quantity in hotels measured by NIGHTSS as a significant positive interactive predictor of financial performance across operating and stock market performance levels. Our results emphasize the contemporaneous nature of positive price effects on profitability and the leading positive effects of customer satisfaction on long-term market performance. Based on the level of performance, the positive effects of customer traffic are conditional on the price, customer satisfaction, or

both. Therefore, room-nights sold, price per room, and customer satisfaction can be considered key drivers of financial performance in the hotel industry.

2.5.2 Practical Implications

The results of this study offer important practical implications for upscale and higher-class chain hotel operators, investors, and financial analysts.

First, the differentiation between short-term operational decision-making contexts impacting the bottom line and long-term strategic decisions reflected in shareholder value needs to be clarified. Specifically, our results emphasize that managers and analysts must be mindful of their expectations regarding which information sources can and which cannot inform them about the visible effects of customer satisfaction on financial outcomes. Our empirical results indicate that customer satisfaction (ACSI) has a positive effect on long-term financial performance and a negative effect on short-term profitability, whereas the effects of price and quantity demonstrate a different temporal pattern. Based solely on the operating results, one might mistakenly conclude that the focus should be on price maximization, and that customer satisfaction, which comes at a cost, is detrimental to profitability. Moreover, profit margins in the end-of-the-year accounting reports do not show effects of customer traffic and satisfaction, suggesting that investment in customer satisfaction does not pay off. However, over the long-term, customer satisfaction has consistently predicted superior stock performance, with no effect from ADR. Owing to its complex nature, this satisfaction-performance link is one of the hardest to understand, and therefore is often ignored (Ittner & Larcker, 1998b), resulting in intuitive rather than data-driven decision making.

Emphasizing the importance of including customer metrics in performance measurement systems (Assaf & Magnini, 2012; Carlbäck, 2010; McManus, 2013), operators must adjust their prices and focus on long-term goals instead of being distracted by the initial negative effects of customer satisfaction on profitability due to higher costs. In lodging, customer satisfaction does not have a quick effect; as for instance, in restaurants. A satisfied or unsatisfied guest will consider returning after some time, if ever. Therefore, the hotel industry should further improve and systemize the understanding of customer satisfaction determinants and their influence on financial performance for value-informed decision making, such as pricing (Ingenbleek, 2014) and resource allocation (Andersson & Carlbäck, 2009; Carlbäck, 2022).

Second, from a system viewpoint, performance metrics must align with each other and towards a goal. Thus, room nights sold (NIGHTSS), identified as a relevant positive performance driver, can be associated with a customer and demonstrate timing patterns

similar to customer satisfaction (ACSI). Therefore, NIGHTSS can provide a clear basis for the cost-benefit analysis of value propositions and constellations from which customers can derive value and provide feedback. As room inventory represents the main cost driver in lodging, the current widely used metrics are not surprisingly inventory-based and capacity-focused (e.g., RevPAR and occupancy rate % measure per available room). Despite the usefulness of these metrics for other purposes, it is difficult or impossible to integrate them into the customer metrics. Thus, using per room night sold or per customer metrics for analysis and planning can facilitate users' involvement and acceptance, leading to the better use of control systems and higher quality of analysis and helping the hosts to stay in control of profit targets.

Third, moderated mediation was only significant at high price and high satisfaction levels only (1 SD above mean values), meaning that the link between customer satisfaction and financial performance will be significant for high-price products with high levels of customer satisfaction. In other words, an investment in customer initiatives will pay back if customers are already satisfied (Niraj et al., 2008), and the effort is worthier for high-paying high-profit customers (Kumar et al., 2013).

In summary, the integration of customer satisfaction into performance management systems is a complex process. Based on our findings from the aggregated corporate data of public hotel companies, security analysts and investors can use the insights of this study and include customer satisfaction in their analytical toolbox. Analysts deploy various nonfinancial indicators, including RevPAR, Occupancy and ADR, for revenue growth forecasts. Our empirical results further suggest that ACSI and NIGHTSS capture stock market performance better than ADR or RevPAR. Considering the solid empirical evidence in the extant literature and the results of this study, ACSI and other customer satisfaction indices could be used broadly for lodging investment decisions.

2.6 Limitations and Directions for Future Research

The main limitation of this study was the accessibility of data. The sample is not only limited to US-based publicly traded hotel chains but is also limited to companies with publicly available data necessary to conduct this research. Furthermore, data up to 2020 constitute an even smaller sample owing to changes in ownership, making the appropriateness of the inclusion of this highly disruptive year questionable. The analysis in this study is aimed at a longitudinal period covering different economic conditions, focusing on the main relationships. Due to the small sample size, it is not possible to isolate crisis years and analyze them separately. Therefore, we ran an additional test without 2020 to ensure the consistency of the main findings. However, the results may contain effects

that require further investigation, using a sufficient amount of data. The small sample size also makes it difficult to explain the stock market perspective and generalize the findings. Another limitation in generalizing the findings is that the sample consists of luxury and upper-scale properties, which are particularly different from small independent operators.

While the unavailability of data is rather difficult to overcome by any researcher, especially for multiple firms, there are further limitations to this study that can be addressed in future research. Public corporate data are generic and do not allow for the analysis of different service models, concepts, and markets. The need to perform additional computations based on these assumptions limited the accuracy of the results of this study. This limitation also extends to the relevance of ACSI company scores, which include satisfaction with all branded hotels, whereas this study only includes hotels under their own management. Moreover, customer satisfaction is likely to be measured with error, not least because of the arbitrary nature of score assignment, which is based on the judgments of individuals and can vary depending on the population.

Similarly, revenue and expense data from financial reports are very general, and using notes for financial statements does not allow for more detailed analysis. Extending corporate data to property-level data would make such analysis more reliable and insightful. As a direction for future research, expanding the level of detail to include individual establishments, service models, and customer-associated details would provide more insights and examples of how the findings and recommendations can be applied in practice. A prerequisite for such research is access to past and future point-of-sale records, for example, from a large hotel chain. If such an opportunity is available, customer data can be collected using a similar cross-level model, particularly by verifying its leading and contemporaneous effects.

Additionally, the model in this study was built based on the additive effects of both customer satisfaction and room price, assuming no interaction between these two variables. Future modelling could test the interactive relationships between these two variables within a similar profitability model. Furthermore, potential reverse causalities should be tested to address the limitations of assuming unidirectional relationships between the drivers and outcomes. In addition, future work could review stock recovery in relation to customer metrics for a longer time span and over periods of peaks and troughs in the economy, such as the recession and the COVID-19 pandemic. Doing so should enable a better understanding of price-traffic relationships and customer perceptions of price relative to satisfaction as long-term performance drivers.