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DETERMINANTS OF FINANCIAL EFFICIENCY AND PERFORMANCE IN BIG-CAP CHAIN HOTELS

Büyük Sermayeli Zincir Otellerde Finansal Verimlilik ve Performansın Belirleyicileri

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JEL Codes:
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Abstract

Chain hotels with $1 billion in market capitalization not only contribute to employment creation and indirectly become a driving force in the regeneration of local economies but also play an essential role in recovering local economies with their high revenue per available room (RevPAR) values. Besides, the financial stability of these hotel chains directly influences the popularity of destinations, resulting in an influx of tourists to nearby regions, which in turn generates an economic contribution to the overall development of the tourism industry. Therefore, the aim of this paper is to determine the financial factors that are affecting the RevPAR (RPR), their role in the industry, and the validity of the agency cost theory of nine chain hotels that have at least $1 billion in market capital listed in U.S. stock markets over the period 2013–2022. The results show that, in contrast to the debt service coverage ratio, receivables turnover ratio, and book value per share variables, the day sales outstanding ratio and current ratio have a negative impact on chain hotels' RevPAR.

Anahtar Kelimeler:
Oda Başına Gelir,
Panel Veri,
Finansal Performans,
Piyasa Değeri,
Temsil Maliyeti Teorisi

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G21, G32, C33

Öz

Piyasa değeri 1 milyar doları olan aşmakta olan zincir oteller, istihdam yaratılmasına katkıda bulunmanın ve dolaylı olarak yerel ekonomilerin yenilenmesinde itici bir güç olmanın yanı sıra, yüksek oda başına gelir (revenue per available room, RevPAR) değerleriyle yerel ekonomilerin toparlanmasında da önemli bir rol oynamaktadır. Ayrıca, bu otel zincirlerinin finansal istikrarı destinasyonların popülerliğini doğrudan etkileyerek yakın bölgelere turist akınına neden olmakta ve bu da turizm endüstrisinin genel gelişimine ekonomik bir katkı sağlamaktadır. Bu nedenle, bu çalışmanın amacı, 2013-2022 döneminde Amerika Birleşik Devletleri (ABD) menkul kıymet borsalarında işlem görmekte olan ve piyasa değeri en az 1 milyar dolar olan dokuz zincir otelin oda başına gelirlerini etki eden finansal faktörleri, bunların sektördeki rolünü ve temsil maliyeti teorisinin bu sektör üzerindeki geçerliliğini belirlemektir. Sonuçlar, borç servisi karşılama oranı, alacak devir hızı oranı, hisse başına defter değeri değişkenlerinin aksine, borç ödeme vadeleri ile cari oran değişkenlerinin zincir otellerin oda başına gelirleri üzerinde negatif bir etkileri olduğunu göstermektedir.

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1. Introduction

Travel and tourism activity is an important source of job creation and a driver of economic activity, supporting 10.3% of global GDP and over 333 million jobs in 2019. The sector directly generated 3.2% of GDP as well as providing wider impacts indirectly through supply chain spending and induced employee wages that support spending (WTTC, 2022: 7). Also, the lodging sector is a crucial component of the tourism and hospitality industry, which is a worldwide phenomenon. Highly capitalized hotels are particularly important in this sector, characterized by large investments, sophisticated operations, and complex financial structures, generating revenues, employing millions of people, and impacting tourism and related sectors as a significant contributor to the global economy. They are globally recognized chains with diverse properties, often publicly traded, catering to various guest segments and budgets, advancing financially, and embracing new technology, marketing methods, and guest experiences. Some of the most well-known of them are Hilton Worldwide Holdings, Inc. which is known for its brands Hilton Hotels & Resorts, Conrad Hotels & Resorts, Waldorf Astoria Hotels & Resorts, DoubleTree by Hilton, and Hampton by Hilton, which also have over 6,800 hotels and timeshare properties across 122 countries, and it is traded on the New York Stock Exchange (NYSE) as well. Marriott International, Inc. is another leading global hospitality company that is traded on the Nasdaq Stock Exchange and has over 7,800 hotels in 133 countries, including brands like Marriott Hotels & Resorts, JW Marriott Hotels & Resorts, The Ritz-Carlton, Sheraton Hotels & Resorts, Westin Hotels & Resorts, and W Hotels. Moreover, Intercontinental Hotels Group, Hyatt Hotels, and H World Group are the others with a market capitalization exceeding $10 billion.

On the other hand, the ever-increasing demand for hotels has made the financial performance of hotel chains an important issue. Understanding the financial health factors of these hotels is not only vital for guests, policymakers, and managers but also for investors to make informed investment decisions and enhance profitability and growth in the sector. Because the hotel industry's cyclical nature and sensitivity to economic fluctuations can result in volatile dividends and stock prices, posing a higher risk. Additionally, agency theory issues can affect brand perception and investor confidence due to negative publicity, ethical concerns about labor practices, or environmental impacts. But in contrast to these potential risks, highly capitalized hotels offer investors a combination of financial stability, growth potential, liquidity, and reduced management risk, making them attractive investment options for many. Therefore, understanding the financial performance of hotel chains valued at over $1 billion is critical for the industry's overall health and future. Thus, the aim of this paper is to explore the financial performance of hotel chains with market capitalization exceeding $1 billion, their role in the industry, and the validity of agency cost theory in the hotel industry, focusing on chain hotels. The study employs the panel data method and covers the years 2013–2022, thereby providing a more comprehensive analysis of the factors influencing the financial performance of major industry players in comparison to studies that consider a wider range of hotel sizes. The metric RevPAR gauges the financial performance of hotels and other lodging companies. This is a pivotal performance indicator in the hospitality industry, encompassing both occupancy and average daily rates (ADR), which reflect the pricing strategy. Furthermore, it is a crucial metric for evaluating the validity of agency theory for chain hotels. Agency theory posits that managers may prioritize short-term gains over long-term value creation. Consequently, RevPAR, which reflects short-term revenue generation, may be an unreliable indicator of long-term value creation.

The remaining sections of this paper are structured as follows: The subsequent section presents a theoretical framework for agency cost theory and a comprehensive literature review, encompassing studies on both financial performance and agency cost analysis. Section 3 requires a detailed overview of the study's methodology, model, sample, and data collection processes. It also includes specific definitions of the variables in the model and the resulting empirical findings. The concluding part of the study analyzes the results and concludes with recommendations for further studies.

2. Theoretical Framework and Literature Review

The agency cost theory examines the potential conflicts of interest that may arise when one party (the principal) engages another party (the agent) to act on its behalf. Although the principal authorizes the agent to make decisions, there is a possibility that the agent's objectives may not always align perfectly with the principal. The theory is based on Smith's 1776 work, The Wealth of Nations, which introduced the principal-agent relationship by arguing that principals cannot supervise a company as rigorously as sole traders or partnerships owned by principals. Since then, Berle and Means (1933) have continued to examine the separation of ownership and control in corporations worldwide, revealing various levels of self-interest motives (Nguyen et al., 2020).

Additionally, Stephen Ross formally proposed economic agency theory in 1973, emphasizing the design of contracts to minimize conflicts of interest between principals and agents. Barry Mitnick, meanwhile, developed institutional agency theory in "Fiduciary Rationality and Public Policy: The Theory of Agency and Some Consequences," highlighting the role of social norms, institutions, and power dynamics in shaping principal-agent relationships. Besides, Jensen and Meckling's 1976 paper, considered the formal inception of agency theory, which combined theories of agency, property rights, and finance to develop a firm ownership structure. They focused on the relationship between shareholders and managers, defined agency costs, and explored the types of agency costs arising from debt and outside equity. Also, Fama and Jensen (1983) contributed to a significant body of literature by demonstrating that agents who hold equity in a firm are more likely to embrace the actions desired by principals as their own.

In a subsequent study, Eisenhardt (1989) proposed that agents act in the principal's interest when their actions are outcome-based. However, when agents perceive an unfair situation, they may act in their own best interests, which may result in information gaps that complicate the principal's ability to monitor their agents' actions. This is known as principal-agent research on agency problems, which encompasses risk-sharing and agent monitoring. In contrast, the positivist perspective focuses on crucial governance mechanisms that prevent agents from acting in their own self-interest. However, the agency problem is a persistent and challenging issue in joint-stock companies, affecting organizations in various forms. It has evolved over time, requiring a comprehensive understanding of its manifestations and associated costs. Hence, academic fields like finance and economics have widely observed the presence of agency issues, making this theory one of the most pivotal in finance and economic literature (Panda and Leepsa, 2017).

Accordingly, agency cost theory-based problems are crucial for chain hotels and industries. Financial performance measurement is essential for reducing agency costs. Companies can create a system that encourages managers to act in the best interests of shareholders by selecting

appropriate metrics and interpreting them within their long-term strategy. Moreover, the complex and interconnected relationship between the hospitality industry and tourism demand is critical to the overall performance of the tourism industry. Numerous studies have thoroughly examined the financial performance of hotels and assessed their impact on the tourism industry. Nevertheless, the research on the impact of agency theory is insufficient. This section of the study comprises a review of the literature on financial performance measurement and the effects of agency costs in various sectors. However, this review prioritizes the tourism and hospitality sectors.

Morck et al. (1988) is a primary source that investigates the relationship between management ownership and the firm's market valuation, as measured by Tobin's Q. A cross-sectional analysis of 371 Fortune 500 firms in 1980 showed that Tobin's Q increases initially as the proportion of shares owned by the board of directors rises, then declines before slightly rising as the proportion of shares rises. The study suggests that running a firm by a founding family member lowers Tobin's Q compared to an officer unrelated to the founder. Haubrich's (1994) paper represents the agency cost impact, employing numerical solutions to the principal-agent problem and comparing these solutions to CEO compensation. Using the Grossman and Hart, Holmstrom, and Milgrom models, he derives numerical predictions and concludes that providing correct incentives can significantly enhance a firm's performance. He found that CEO compensation can increase by $10 for every $1,000 of additional shareholder value, with some cases reaching as low as 0.003 cents. The study of Dahlstrom et al. (2009) examines the principal-agent perspective in the hotel industry, focusing on entrepreneurs' motivations to join hotel alliances. The study explores the decision between independent ownership, affiliation with a voluntary chain, integration, and franchising. Data from 650 hotels revealed that factors such as size, amenities, population, and headquarters distance have a significant impact on hotel governance. Guillet and Mattila's (2010) study on corporate governance in the U.S. hospitality industry revealed that firms with weaker shareholder rights tend to be larger, have higher earnings per share, lower capital expenditure per asset, and have higher leverage ratios. Furthermore, the study identified significant discrepancies in performance metrics between high- and low-corporate governance firms across various hospitality sectors, including hotels, restaurants, and casinos.

In addition, Ozdemir and Upneja's 2012 study identified a positive correlation between CEO compensation and the proportion of outside board members in US lodging firms. However, their findings contradict previous research, which suggested that larger boards weaken board effectiveness and control over CEO actions. In another study, Ozdemir et. Al (2013) examines the relationship between CEO compensation and risk (systematic risk) in the U.S. restaurant industry. It investigates whether CEOs in restaurant firms with high-risk profiles should be rewarded with higher incentive-based compensation to motivate them to perform at their full potential for the mutual benefit of the CEO and shareholders. Moreover, the study examines whether firm risk moderates the relationship between firm performance and CEO total compensation, controlling for firm size and CEO ownership. The findings indicate that firm risk is associated with higher incentive-based compensation for CEOs of restaurant firms. Additionally, the moderating effect of firm risk on the relationship between pay and performance in the restaurant industry is not evident.

In a separate study, Ozdemir et al. (2013) explored the relationship between CEO compensation and risk in the U.S. restaurant industry. They found that high-risk firms reward CEOs with higher incentive-based compensation to encourage them to reach their full potential.

The study also examined how firm risk moderates the relationship between firm performance and CEO total compensation. The findings suggest that firm risk is associated with higher incentive-based compensation for CEOs in restaurant firms, but the moderating effect on pay and performance is not evident. Freedman and Kosová's (2014) study investigated the impact of ownership structures on hotel compensation and human resource strategies. The study builds on previous research (Krueger 1991, Rebitzer 1995, Rebitzer and Taylor 1995), examining the complex relationship between supervision, pay, and personnel practices in the hotel industry. The study highlights the labor-intensive nature of the industry and the use of technology as a substitute for human supervision, as well as contractual differences between salaried managers and franchisees. The study reveals that workplace agency issues impact pay timing and employers' tendency to use performance-based incentives like bonuses and merit-based raises. Furthermore, Bianchi and Chen's 2016 study examines the relationship between CEO compensation and firm performance in both the hospitality and non-hospitality industries. They used a fixed effects model to address the principal-agent problem in CEO compensation between 1992 and 2010. The findings showed a lower compensation rate for CEOs in the hospitality industry compared to other industries, primarily due to higher salaries, bonuses, long-term incentive plans, non-equity incentives, and restricted stocks. The study also found that incentives provided to CEOs did not resolve the principal-agent problem in both industries. In their 2022 study, Liang et al. employed dynamic panel regression tests to assess the influence of board size, age, and education on the performance of Chinese hotel firms. The results showed that board size and age had nonlinear effects on performance, whereas board education had no significant effect. Board size's effect on growth opportunities was cubic, supporting agency and resource dependence theories. Board age's influence on growth opportunities was quadratic, with an optimal point of 51. The study emphasizes the importance of hotel directors' resources and experience for success.

The study of Bresciani et al. (2015) on the Italian hotel industry is one of these that investigates the impact of factors such as size, category (stars), and service variety on performance. The study analyzed 450 hotels and found a strong correlation between a hotel's star rating and its performance. However, no significant impact on performance was found from size or service variety. In another study, Aznar-Alarcón and Sayeras Maspera (2015) analyzed the financial structure, size, and profitability of hotels in three Spanish coastal regions: Costa Brava, Costa Dorada, and Costa del Sol. The analysis of around 100 hotels revealed significant differences in their performance within these regional clusters of the hospitality industry. The study revealed that the three regions have significant differences in hotel size, financial structure, and economic performance. Costa del Sol's larger hotels result in higher debt and interest payments, negatively impacting profits. Costa Dorada's larger hotels allow for economies of scale with manageable interest payments, leading to better economic performance due to their size and higher occupancy rates.

A recent study by Babajee et al. (2022) explored the link between corporate social responsibility (CSR) activities and found that CSR activities significantly impacted firm financial performance in 43 hotels from 2007 to 2018. Growth opportunities mediated the relationship, and high-growth hotels had better opportunities to engage in CSR activities, which positively impacted their performance. Temelkov's 2022 study examined the financial impact of COVID-19 on hotels in 2020 compared to 2019, finding a decrease in operational efficiency and increased revenue spending. Hotels implemented cost-cutting strategies, while government support programs and domestic tourism promotion helped mitigate the pandemic's negative effects.

Moreover, Raguseo and Vitari's 2017 study analyzed the impact of electronic word of mouth (e-WOM) on the performance of branded chain hotels in France, using financial data and 34,164 online customer reviews from TripAdvisor. The research explored 221 hotels, including both branded and non-branded chains in France, from 2005 to 2013. The study reveals that the volume of online reviews does not impact RevPAR growth for branded chain hotels, but it positively affects it for non-branded chain hotels. The valence of online reviews and their interaction with the yearly and cumulative volume of reviews directly affect RevPAR growth and sales profitability for non-branded chain hotels, but not for branded chain hotels. The study contributes to the literature on e-WOM and suggests that branded chain hotel managers may face challenges in utilizing e-WOM to achieve higher revenue per available room and sales profitability.

The study by Sharma and Upneja (2005) is one of the primary ones to examine the effective factors of the financial performance of small hotels, with a focus on developing countries such as Tanzania. The study involved the use of financial ratio analysis on business performance data collected through face-to-face interviews with small hotel owners in Tanzania. The main findings indicate that inefficiencies resulting from inadequate employee training, low investments in fixed assets and technology, as well as government policies that overlook the importance of ensuring safety and security and expediting the processing of licenses and permits, may equally contribute to low profitability in small hotels. In a similar study, Sardo et al. (2018) analyzed the effect of intellectual capital on small and medium-sized hotel financial performance for the period between 2007 and 2015, using a sample of 934 Portuguese small and medium-sized hotels with a dynamic panel data method. The study reveals that human capital, structural capital, and relational capital are key components of intellectual capital that positively impact hotel financial performance. These components are essential for service quality in the hotel sector, and establishing and maintaining long-term relationships with key stakeholders also capitalizes on human and structural capital. Also, Sainaghi’s (2010) paper is among the earliest ones that explore identifying the determinants of RevPAR for individual firms located in a destination of 72 individual firms operating in the 3–5-star range using data from financial statements and questionnaires, focusing on 'what' and 'where' dimensions. The study reveals that room count, employee count, refurbishment history, market orientation, and centrality within the destination impact the positioning of the "what" and confirm the relevance of location, particularly centrality within the destination.

Furthermore, Nunes and Cardoso Vieira Machado (2012) emphasized the importance of financial measures in hotel performance assessment but suggested that non-financial measures should be used to consider the industry's unique characteristics and hotel service. Singh and Schmidgall's (2012) study examined the U.S. lodging industry's financial profile by analyzing 2,091 financial statements from hotels with asset sizes ranging from $500 thousand to $250 million. The study found that the industry's financial performance varies based on hotel size and sample quartiles. Asdullah and Rehman (2015) analyzed the financial performance of the Serena Hotel and the Marriott Hotel in Pakistan, finding that both hotels performed better in 2012 but didn't maintain sufficient assets compared to liabilities. The Serena Hotel had a higher profit margin ratio than the Marriott Hotel. Jawabreh et al. (2017) explored strategies for managing hotel income and costs, revealing that the number of guests and their spending power significantly impact a hotel's revenues, with single guests' spending power having the greatest impact on

profitability. Both changing and fixed costs directly affect the hotel sector's profitability and activity, requiring careful planning, monitoring, and follow-up.

Both Pacheco (2016) and Chattopadhyay and Mitra (2019) conducted studies on RevPAR and room ADR in the hotel industry. Pacheco's study found that local variables significantly impact hotel performance in Portugal, particularly for 4-star hotels, accounting for 55% of changes in RevPAR. The hotel sector's performance is linked to cyclical factors, particularly tourism growth, but is vulnerable to uncontrollable, volatile variables. In their study, Chattopadhyay and Mitra predicted RevPAR in Sweden using multiple regression and the MARS (Multivariate Adaptive Regression Splines) model. The study analyzed monthly seasonality, yearly trends, and nonlinear price and demand influences. The findings indicated that MARS could establish a nonlinear relationship between RevPAR and other determining variables, which suggests the potential for developing an improved forecasting model.

Also, Jiang and Taylor (2020) studied price determinants in the lodging industry. They found that factors such as hotel class, operation, location, size, and seasonality significantly influence the ADR and RevPAR. The study emphasizes the importance of these determinants in revenue management and provides guidelines for pricing decisions in resort areas. The data indicates that independent hotels typically have higher ADR and RevPAR than chain hotels, whereas franchised hotels tend to have lower ADR and RevPAR. Occupancy does not appear to be a determining factor for prices, and older hotels tend to have higher ADR and RevPAR. Also, increased passenger arrivals have a positive effect on ADR and RevPAR. In Jakaša's (2017) study, the financial performance of Croatia's 40 largest hotel companies was analyzed, with a focus on factors such as size based on sales, leverage, coverage ratio I, and coverage ratio II. The study found that leverage had a negative correlation with net margin performance, making it the most significant variable. Only the coverage ratio had a significant impact on performance when it came to ROE (Return on Equity), whereas the independent variables had no significant impact on ROA (Return on Assets). Shieh et al. (2018) investigated the factors that impact the financial performance of international tourist hotels in Taiwan using moving average regression and panel data regression. The study identified four key factors that affect financial performance: domestic visitors, occupancy rate, operation year, and joining a chain system.

Besides, in two separate studies on Kenya, Chebii and Kaplelach (2019) conducted a study on the factors affecting the financial performance of 67 Star Hotels in Kwale County, Kenya. The research, based on open-ended and closed questionnaires, secondary sources, and annual financial reports, revealed that hotel ownership, organizational structure, capital structure, and working capital all positively impact the financial performance of hotels. In 2021, Murimi et al. did a study on revenue management practices (RM) and how they affect a hotel's financial performance. They did this in two steps: first, they looked at previous research on RM practices and what factors affect them; and second, they improved the framework. They present a theoretical framework that explains the impact of revenue management practices on the financial performance of Kenyan hotels by using contingency theory and its strengths and weaknesses in revenue management studies. Furthermore, Abdelmawgoud and Abd El Salam's (2022) study is one of the latest to examine operational and financial performance indicators in Cairo's four- and five-star hotels. The study found high variation in performance indicators, with factors such as hotel manager gender, chain type, and nationality having a significant impact on hotel performance. The study found a positive correlation between total room revenues and the average daily rate, RevPAR,

total rooms sold, and annual rooms. Additionally, a strong direct relationship was observed between the average daily rate and RevPAR at the 0.01 level.

On the other hand, despite being an integral component of the tourism sector and playing a vital role in supporting the economic well-being of destinations, fostering job creation, and ensuring a smooth and enjoyable travel experience for tourists, there are relatively few studies on the financial performance of chain hotels. It is important to objectively evaluate their financial impact to better understand their contribution to the industry. Thaothampitak and Wongsuwatt's (2019) study is one of them, which investigates the effect of chain hotel employees' perceived risk on their hotel's financial performance and the moderating role of hotel employees' job roles in Thailand using a questionnaire survey. The results of their study revealed that the perceived risks of chain hotels are a significant instrument for enhancing all three aspects of hotel performance, including profitability, growth, and market value. Yang's 2019 study is another one that examined the correlation between the amount of money spent, the number of hotels acquired, and the financial performance of acquirer hotel groups post-acquisition. The results showed that the increase in EBITDA and operating efficiency ratio is more dependent on the number of target hotels acquired than the amount of money invested. The study also found that when more target hotels are acquired, the annual EBITDA increases at a lower percentage, while the operating efficiency ratio increases at a higher percentage. The size of the acquisitions significantly impacts the financial performance of the groups.

3. Model and Findings

3.1. Data and Variables

Table 1 presents characteristics selected from scholarly literature, including nine U.S. stock market-listed group hotels with a minimum capital market value of $1 billion, sourced from official websites and annual reports covering the period from 2013 to 2022 and, Table 2 shows the descriptive statistics.

Table 1. The Variables and Definitions

Variables	Symbols	Definitions
Dependent Variable		
RevPAR	RPR	Total Room Revenue / Number of Available Rooms
Explanatory Variables		
Operating Cash Flow per Share	OCF	(Operating Cash Flow-Preferred Dividends) / Total Common Shares Outstanding
Price to Book Ratio	PBR	Market Value per Share / Book Value per Share
Price to Earnings Ratio	PER	Market Value per Share / Earnings per Share
Price to Sales Ratio	PSR	Market Value per Share / Total Revenues
Book Value per Share	BVS	(Total Equity-Preferred Equity) / Total Shares Outstanding
Day Sales Outstanding	DSO	(Accounts Receivable / Total Credit Sales) x Number of Days
Receivable Turnover	RTV	Net Credit Sales / Average Accounts Receivable
Debt Service Coverage Ratio	DSC	Net Operating Income / Total Debt Service
Current Ratio	CUR	Current Assets / Total Assets
Return on Investment	ROI	(Net Income / Total Investment) x 100
Return on Assets	ROA	Net Income / Average Total Assets
Return on Equity	ROE	Net Income / Shareholder Equity

Table 2. Descriptive Statistics

	RPR	OCF	DSC	RTV	DSO	BPS	PER	PSR	PBR	ROE	ROI	ROA	CUR
Mean	106.81	0.16	0.21	12.03	46.17	8.61	21.80	3.00	-0,26	-10.81	14.49	6.08	1.07
Median	102.96	0.13	0.12	7.49	46.93	3.34	20.48	2.55	2.65	3.69	10.54	5.27	1.03
Max.	246.25	9.06	1.25	61.46	125.86	41.56	88.50	8.30	80.78	383.7	91.39	32.48	2.60
Min.	0.0000	-9.76	-0.14	0.000	0.000	-14.00	-59.70	0.000	-239.14	-947.97	-21.04	-14.98	0.42
Std. Dev.	54.240	2.12	0.31	13.02	26.41	14.82	21.52	1.91	33.58	141.29	19.72	8.01	0.45
Skewness	0.4115	-0.11	2.25	2.54	0.49	0.89	0.28	0.92	-4.19	-3.68	1.38	0.20	1.13
Kurtosis	2.3704	10.60	7.35	8.66	3.33	2.51	5.82	3.69	31.1	25.45	5.59	3.78	4.52
J-B	4.0267	216.89	147.13	217.79	4.17	12.83	31.18	14.66	3224.2	2094.54	53.85	2.88	27.92
Prob.	0.1335	0.000	0.000	0.000	0.12	0.001	0.000	0.000	0.000	0.000	0.000	0.23	0.000
Sum	9613.7	15.17	19.63	1083.4	4155.48	775.01	1962.1	270.35	-24.19	-972.68	1304.79	547.88	97.19
Obs.	90	90	90	90	90	90	90	90	90	90	90	90	90

3.2. Panel Regression Model

Equation (1) is designed to calculate the determinant financial factors for the RevPAR model (RPR), which represents financial efficiency.

$$RPR_{it} = \beta_0 + \beta_1 OCF_{it} + \beta_2 PBR_{it} + \beta_3 PSR_{it} + \beta_4 BVS_{it} + \beta_5 DSO_{it} + \beta_6 RTV_{it} + \beta_7 DSC_{it} + \beta_8 CUR_{it} + \beta_9 ROI_{it} + \beta_{10} ROA_{it} + \beta_{11} ROE_{it} + \varepsilon_{it} \quad i = 1, \dots, 9 \tag{1}$$

Panel regression is a commonly used econometric technique for analyzing cross-sectional and time-series data. However, it is important to check for prerequisites such as autocorrelation, heteroscedasticity, and multicollinearity before using it. Additionally, it is also necessary to ensure that there are no issues with stationarity or cross-sectional dependence (CSD).

Ragnar Frisch introduced the term multicollinearity' to describe the precise linear relationship between independent variables in a regression model, which can lead to estimation errors when analyzing time and cross-sectional series. To reduce biased coefficients, highly correlated variables can be removed from the model by eliminating those strongly linked to the VIF (Variance Inflation Factor). But multicollinearity is usually not a big problem with panel data that includes more than one thing, and it is still a good idea to do correlation matrix or VIF tests to make sure there isn't any problematic multicollinearity. In this paper, VIF analysis is performed to identify potential factors causing multicollinearity using a test based on the variance inflation factor. Besides, some studies consider a VIF score exceeding 5 to be concerning, while others adopt a more prudent stance and establish a threshold value of 2.5 (Gujarati and Porter, 2009: 340). The analysis revealed that the variable with the highest VIF value was 3.59. Therefore, the findings suggest that the model did not exhibit any issues with multicollinearity.

3.2.1. Cross Sectional Dependency

CSD and unit root tests are crucial in econometrics, particularly when analyzing panel data. Despite their differences, they interact with and impact each other. Thus, the cross-section dependence test developed by Pesaran (2004) was primarily conducted, and the results are presented in Table 3.

Table 3. Cross Sectional Dependency Analysis

H_0: No cross-section dependence				
Variables	**CD-test**	**p-value**	**Corr**	**abs(corr)**
RPR	9.17	0.000	0.483	0.554
OCF	7.98	0.000	0.420	0.510
PBR	-0.81	0.419	-0.043	0.496
PER	1.36	0.173	0.072	0.378
PSR	2.46	0.014	0.130	0.616
BVS	-0.02	0.984	-0.001	0.494
DSO	4.64	0.000	0.245	0.484
RTV	5.58	0.000	0.294	0.515
DSC	8.95	0.000	0.472	0.472
CUR	1.83	0.067	0.097	0.316
ROI	7.36	0.000	0.388	0.414
ROA	9.01	0.000	0.475	0.488
ROE	2.11	0.035	0.111	0.281

Table 3 shows that certain variables have probability values below the critical threshold of 0.05, indicating the presence of CSD among these series. If CSD is detected, various methods can be used to address it. However, it can make rejecting the null hypothesis of a unit root more challenging, even when the series is stationary. To detect and eliminate the problem of CSD in unit root testing, several second-generation panel unit root tests must be applied.

3.2.2. Panel Unit Root Tests

This section of the paper includes panel tests for unit roots. The decision on which unit root tests to apply is contingent upon the results of the CSD test, as shown in Table 1. Therefore, it is necessary to examine the stationarity of the series that display CSD (RPR, OCF, PSR, DSO, RTV, DSC, ROI, ROA, and ROE) using the second-generation unit root test. Hence, the Pesaran-CADF test, developed by Pesaran in 2003, was applied to the series showing CSD, and unit root tests were analyzed, and the results are shown in Table 4. For series that do not exhibit CSD, stationarity is evaluated using first-generation unit root tests such as LLC and IPS, and non-stationary series are transformed into stationary ones by taking the first difference.

Table 4. Pesaran's CADF Test Results

H_0: Unit root		
Series	**Z[t-bar]**	**P-value**
RPR	-2.492	0.006
OCF	-3.771	0.000
PSR	-2.131	0.017
DSO	-2.592	0.005
RTV	-1.864	0.031
DSC	-1.917	0.028
ROI	-2.228	0.013
ROA	-2.237	0.013
ROE	-3.473	0.000

3.2.3. Panel Data Regression

After ensuring the series is stationary through differencing, an F test was conducted to determine the most appropriate model between the fixed/random effects models and the pooled model. The results of the F test [F (12, 60) = 16.87, P = 0.000<.01] revealed that the pooled regression model was not suitable for estimation. Thus, the Hausman test is used to determine whether a panel model should use a fixed effect or a random effect. The results of the Hausman test (prob>chi2 = 0.0240) showed that the fixed effect estimator was consistent at a significance level of 0.05, disconfirming the null hypothesis that random effects are valid and suggesting the fixed effects model is more appropriate.

Following both a modified Breusch-Pagan / Cook-Weisberg test was also used to check for heteroscedasticity, and the null hypothesis of constant variance was accepted depending on the chi-square test statistic (chi2 (1) = 1.27, prob>chi2 = 0.2604>.01). The series is also checked for serial correlation and autocorrelation in panel data using the Wooldridge test. The results of this test showed that there is evidence to suggest that there is a serial correlation in the data (Prob > F = 0.0194).

Ultimately, as shown in Table 5, Beck and Katz's (1995) period SUR (PCSE) method heteroscedasticity-consistent standard error estimator re-estimates the model. This method is useful for estimating when both heteroscedasticity and autocorrelation are present.

Table 5. Beck and Katz's Panel Corrected Standard Errors Estimator Results

Dependent Variable: RPR				
	[Coefficient]	**[Std.Error]**	**[z Statistics]**	**[p-value]**
OCF	-1.001702	1.565786	-0.64	0.522
DSC	57.26488	10.97273	5.22	0.000*
RTV	1.798869	0.3263034	5.51	0.000*
DSO	-0.5883361	0.1377212	-4.27	0.000*
BVS	1.139649	0.2904194	3.92	0.000*
PER	0.0666387	0.1373087	0.49	0.627
PSR	2.671174	2.369638	1.13	0.260
PBR	0.0450221	0.085138	0.53	0.597
ROE	0.0045562	0.027191	0.17	0.867
ROI	0.2653914	0.2309649	1.15	0.251
ROA	0.9737203	0.8634342	1.13	0.259
CUR	-18.92321	9.282876	-2.04	0.041**
CONSTANT	92.34342	17.12572	5.39	0.000
Observations			81	
Adj. R^2			0.6350	
Prob > chi2			0.0000	

Note: The model was applied with a White's heteroscedasticity-consistent standard error estimator.
*Statistical significance at 1% level. **Statistical significance at 5% level

Table 5 indicates a positive correlation between the RPR and the DSC. DSC is a key financial statistic in the hotel industry and quantifies a hotel's capacity to cover its debt payments using its operational cash flow. The calculation involves dividing the net operating income (NOI) by the total debt service. Therefore, it may be inferred that the correlation between RPR and DSC is contingent upon a high RPR. Since RPR generally results in increased net operating income,

which subsequently leads to a higher DSR, this is due to the fact that RPR is a direct factor influencing NOI.

RTV has a positive relationship with the model, and Beck and Katz’s (1995) panel-corrected standard errors estimator shows that this is statistically significant. Hotels facilitate credit sales by providing customers with the choice to pay using a credit or debit card, and this payment method enables consumers to delay payment for their lodgings to boost sales. Furthermore, BVS has a positive effect, whereas RPR has an inverse correlation with both DSO and CUR; however, the impact of CUR on RPR is relatively weaker.

4. Conclusion

Chain hotels possess the ability to attract a larger percentage of tourists to a specific location due to their established brand recognition, esteemed reputation for excellence, and consistent service standards. This power serves as a catalyst for stimulating local economies by encouraging increased expenditure on lodging, food and beverage, and other tourism-related services. Additionally, these organizations also operate as important employers within the tourism industry, offering employment opportunities to a diverse array of the public, including hotel staff, tour guides, and transportation suppliers. Simultaneously, they are making substantial investments in their properties and neighboring areas to foster the development of new infrastructure, attractions, and amenities. Nevertheless, it is equally uncontested that chain hotels generate substantial economic value and exert a considerable influence on both national and global economies. Moreover, since their operations generate cash flows that are contingent on foreign currency transactions, they also have an impact on countries' balances of payments. They also contribute to infrastructure development and knowledge transfer, providing a more skilled workforce and a more attractive environment for further economic growth. Therefore, this study was conducted to identify the financial factors that affect the financial performance and financial sustainability of chain hotels, which are among the important stakeholders in economies, and to test the effects of agency costs on these institutions. Hence, I employ panel data methodology to assess the financial factors that influence the financial performance of large chain hotels and to evaluate the impact and validity of the agency cost theory in these hotels.

The findings revealed a positive correlation between RevPAR and debt service coverage ratio in chain hotels with $1 billion in market capitalization. This supports the efficient management of agency costs in the hotel industry, despite anticipated agency costs due to ownership separation, operational complexity, information asymmetry, and misalignment of incentives. Large chain hotels effectively manage these costs by monitoring, aligning incentives, and increasing transparency. Established chain brands, due to their higher brand awareness and customer loyalty, can benefit from higher occupancy rates and implement more flexible pricing strategies. This aligns the interests of managers (agents) with those of shareholders (principals), thereby reducing the likelihood of them engaging in risky ventures that could jeopardize the firm's solvency and their position. This result is consistent with the findings in the literature (Corgel and Gibson, 2005).

Moreover, the findings showed that there is also a positive relationship between RevPAR and RTV, and this is a clear sign of the revenue generation capability and debt collection efficiency of these hotels. By maintaining strong RevPARs and optimizing RTVs, they enhance

their financial stability, investor appeal, and long-term growth prospects. In contrast, RevPAR has a negative correlation with days sales outstanding, which is consistent with the positive RevPAR-RTV relationship and emphasizes the importance of accounts receivable management for hotels. Because hotels can achieve long-term success and sustainability in the competitive hospitality business by prioritizing the reduction of DSO, this strategy improves cash flow, minimizes financial risks, and enhances overall financial health. This positive relationship suggests that there is an alignment between the interests of management (agents) and shareholders (managers) in chain hotels. A higher RevPAR indicates the hotel's effective room sales and revenue generation, while a higher receivables turnover rate confirms the effective collection of revenue. This reduces the risk of negative debt and, potentially, increases profitability by freeing up cash flow for reinvestment. The positive correlation between these variables suggests that the management of working capital is effective, which in turn indicates that the financial health of chain hotels is robust. Consequently, these fosters enhanced investor confidence and a reduced cost of capital for chain hotel companies. According to shareholders, the reduction of agency costs and the improvement of financial performance are both desirable outcomes. In fact, various studies (Warrad and Omari, 2015; Blal et al., 2018; Yamin and Prawiti, 2020; Annaria et al., 2021) that investigated the impact of various financial ratios on profitability (ROE, ROA) and financial performance (revenue growth) have found a positive relationship between receivables turnover rate and RevPAR. This is because efficient accounts receivable management, along with other operational aspects, can improve financial performance, which is likely to have a positive impact on RevPAR for hotels.

Additionally, BVS exerts a positive influence on RevPAR. The findings indicated a positive correlation, suggesting that hotels with consistently high RevPAR tend to have a greater book value per share. This is due to RevPAR's role in mitigating agency conflicts and enhancing financial performance. A high RevPAR indicates a hotel's financial health, as increased revenue generation per available room correlates with improved profitability. Hotels with high RevPAR have greater financial resources to reinvest in property upgrades, staff training, or brand development. This virtuous cycle fosters long-term financial sustainability and growth, resulting in improved operational efficiency and a stronger brand. Furthermore, a high RevPAR is also associated with a decrease in agency conflicts. If financial pressures mount due to low RevPAR, managers may be inclined to prioritize their own interests over those of shareholders. This may manifest as excessive compensation or short-sighted cost-cutting measures that ultimately erode shareholder value. On the other hand, robust RevPAR performance provides financial stability, thereby reducing the pressure to engage in such behavior. In fact, the results suggest that hotel management can create a more shareholder-friendly environment by prioritizing strategies that increase RevPAR, resulting in enhanced financial performance and a higher book value per share.

Also, within the framework of agency theory, the relationship between the current ratio and RevPAR is complex. A robust RevPAR is indicative of financial stability. This allows hotels to invest in growth opportunities that may lead to a short-term decrease in the current ratio. Moreover, such investments have the potential for long-term profitability gains, including property expansion, brand acquisition, and technological advancements. Similarly, high occupancy rates in the hotel industry led to industry-specific working capital requirements, resulting in a lower current ratio compared to other industries. Large hotel chains frequently franchise their brands, reducing the amount of property, plant, and equipment (PP&E) on their balance sheet, resulting in a lower current ratio, even with a robust RevPAR. Seasonal fluctuations

are also important because RevPAR varies depending on the season, allowing hotels to strategically adjust their working capital. During peak seasons, hotels may invest in additional inventory or staffing to meet demand, temporarily decreasing the current ratio. Conversely, during low seasons, they may reduce inventory levels, increasing the current ratio but potentially impacting the guest experience during peak periods.

A high RevPAR, on the other hand, is a sign of strong financial performance. However, it can also prompt managers to prioritize investments that advance their careers or visibility, even if they do not yield the highest return on investment (ROI). This can result in increased expenditure on non-economically viable projects or lavish perks, which in turn reduces the current ratio without clear long-term benefits for shareholders, according to agency theory. The analysis shows that there is a negative correlation between RevPAR and the current ratio; the presence of extraordinary circumstances during the COVID-19 pandemic caused a significant downturn in the hospitality sector, resulting in a decline in RevPAR. However, chain hotels with strong financial management, such as those in this study, were able to maintain a high current ratio, which is consistent with previous research findings (Temelkov, 2022; Nicolau et al., 2023; Singh and Corsun, 2023).

The findings exposed a negative correlation between RevPAR and day sales outstanding in chain hotels with $1 billion in market capitalization. Furthermore, the evidence from studies of working capital management, profitability, and financial performance confirms a negative relationship between DSO and RevPAR (Cumbie and Donnellan, 2017; Nguyen, 2023). A longer DSO can lead to lower profitability, which in turn can translate into lower RevPAR for hotels due to revenue collection delays. Effectively managing DSO is critical to optimizing financial performance and potentially increasing RevPAR in the hospitality industry.

In conclusion, RevPAR is a key indicator of a hotel chain's efficiency in managing agency costs. A higher RevPAR indicates better financial health, profitability, and shareholder value, suggesting efficient resource utilization. Conversely, a negative correlation between RevPAR and metrics like days sales outstanding suggests longer collection periods lead to lower RevPAR. This suggests challenges in managing accounts receivable, potentially impacting cash flow and overall financial performance. This could indicate inefficiencies in hotel credit and collection processes, which in turn could affect agency cost management. The analysis emphasizes agency theory's concern.

Future research could investigate the variation in agency costs and management strategies across chain hotels in different geographical regions. Additionally, it could investigate the influence of market competition, seasonality, and economic conditions on the relationship between RevPAR and days sales outstanding, as well as on agency costs in the hotel industry.

Declaration of Research and Publication Ethics
This study which does not require ethics committee approval and/or legal/specific permission complies with the research and publication ethics.

Researcher’s Contribution Rate Statement)
I am a single author of this paper. My contribution is 100%.

Declaration of Researcher’s Conflict of Interest)
There are no potential conflicts of interest in this study.

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