Intrinsic Determinants of Profitability in the Hotel Resort Industry In India

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Introduction

The hotel industry is one of the most significant sectors of the tourism industry of India. Profitability becomes a prime indicator of success and sustainability in this competitive, asset-intensive industry. Hotel profitability is determined by intrinsic and extrinsic factors that range from operational efficiency and asset management to more general economic factors and market demand. These determinants are of paramount importance to stakeholders and owners who hope to maximize financial performance and get through the unique challenges of the hospitality sector.

The study focuses on firm-specific financial metrics to identify and analyze the intrinsic profitability factors of the Indian hotel resort industry, examining the impact of solvency, size of the firm, cash flow efficiency, and asset turnover on Return on Assets, as a measure of profitability. This study reveals how hotels can maximize profits. This is done by analyzing secondary data from 105 Indian hotel resorts, period from 1999 to 2024. This will help stakeholders of the hotel industry, including managers and investors, in developing strategies for increasing financial profitability and better operational efficiency in a highly competitive environment.

Literature Review

Dimitrić et al. (2019) investigated profitability variables in Mediterranean hotel companies, by analyzing data from 2007 to 2016 using the Generalized Method of Moments (GMM). The paper studies the impact of the firm size, firm age, solvency ratio, net asset turnover(NAT), ratio between cash flow and operating revenue(CFOR), and productivity of employees on the profitability of these hotel variables. Here, Return on Assets (ROA) is used as a measure of profitability. The study finds that CFOR positively impacts profitability across all countries. NAT is significant for all countries except Portugal, while labor productivity is only significant in Spain, which has the highest turnover per employee. The solvency ratio positively affects profitability, except in Greece due to high debt levels. Firm size is a significant variable that explains profit for hotels in Spain and Portugal, while the impact of company age on profitability varies from country to country .

Mohamad Said, N et al. (2021) studied factors affecting profitability in the Malaysian hotel industry during the COVID-19 pandemic. The study was focused on five hotel companies listed on Bursa Malaysia, analyzing data from 2010 to 2019. Independent variables included leverage, liquidity, net asset turnover, and firm size, with Return on Assets (ROA) used as the measure of profitability. Using panel data regression analysis, a fixed-effects model was applied to evaluate the impact of these variables on profits of the industry. The findings reveal that leverage impacts ROA in a positive way, while firm size has a significant negative effect on profitability. Liquidity and net asset turnover showed no statistically significant relationship with profitability, though liquidity had a negative relationship. The study indicates the importance of effective asset and debt management, especially during economic trials, to increase financial resilience in the hotel sector.

Karanovic, G. (2023) examined the effects of intrinsic factors on the financial performance of the hotel industry in select Central and Eastern European Union countries. The study considered 614 tourism and leisure companies across 8 EU member states, from the year 2015 to 2022 from the EMIS database. Independent variables included total equity, trade receivable turnover, working capital turnover, long-term debt, current ratio, debt to total assets ratio, debt to equity ratio, net sales revenue trend, total operating revenue trend, shareholders' equity trend, cash to total assets, and current liabilities to total liabilities. Return on Assets (ROA) was used as the dependent variable that measures financial performance. The study applied a panel data fixed effects model to analyze the impact of these intrinsic independent factors on ROA. Results revealed that total equity, current ratio, and cash to total assets positively impacted ROA, while trade receivable turnover and debt to total assets ratio had a negative impact.

Menicucci, E. (2018) examined the independent variables that influence profitability in the Italian hospitality industry, analyzing a sample of 2,366 Italian hotels over the period 2008–2016. The study focused on independent variables such as business model (accommodation, location, international, chain affiliated), ownership structure(family or shareholder), management education(bachelor's degree of general and financial manager), and market variables (financial leverage, cashflow, sales volatility) , including the financial crisis, as potential determinants of profitability. Using a multidimensional approach to measure profitability with Return on Assets (ROA), Return on Equity (ROE), occupancy rate, and gross operating profit per available room (GOPPAR), the author applied a regression model on panel data. The study reveals that factors such as size, internationalization, location, accommodation as a primary activity, and chain affiliation have a positive effect on hotel profitability. The results also show that firm related factors like ownership structure and business model significantly affect profitability, while management education did not have a statistically significant impact. This research provides valuable insights for academics and industry experts, focusing on the importance of firm characteristics in determining profitability within the Italian hospitality industry.

Karanović, et al. (2020) examined the effect of capital structure and other financial characteristics on the profitability of the hotel industry in Croatia. The study considered 19 hotel companies listed on the Zagreb Stock Exchange, using financial data from 2003 to 2017. Key dependent variables were return on assets (ROA) and return on equity (ROE), while independent variables included cash ratio, debt ratio, equity to non-current assets, total assets turnover, and crisis effects (2009-2015). A panel data analysis was applied, with corrected standard errors models to address heteroscedasticity, cross-sectional

dependence, and serial correlation issues. The study showed that financial stability, total assets turnover, and gross profit margin had a positive influence on ROA, while the 2009-2015 crisis had a negative effect on both ROA and ROE. The study provides insights for hotel industry managers to optimize and strategize financial decisions for better profits.

Problem of study

- To identify and analyze the intrinsic factors that influence profitability of the hotel resort industry.

The study investigates the impact of the independent variable of solvency, firm size, cash flow, and asset turnover on the dependent variable of profitability, as measured by Return on Assets (ROA). The study could help hotel industry stakeholders optimize their financial and operational strategies to generate more profits..

Methodology

Data Collection and Preprocessing:

In this study, factors influencing profitability in the hotel resort industry are examined using secondary data obtained from Capitaline website with website address: https://awsone.capitaline.com. The research is conducted on 105 hotel resort industries in India listed on the website period from 1999 to 2024. The data was taken from the following financial records:

1. Balance sheet of the resorts in India
2. Profit and Loss statement of each of the resorts
3. Key Financial Ratios for all hotels

The required data is further merged in a csv file to be processed for applying the model.

The dependent variable here is considered as Return on Assets (ROA), which is a key measure of profitability, while the independent variables include the Solvency Ratio (SOLV), Firm Size (Total Assets), Cash Flow to Operating Revenue Ratio (CFOR), and Net Asset Turnover (NAT).

Dependent Variable

1. Return on Assets (ROA) -

ROA measures a company's profitability in relation to its total assets. It indicates how efficiently a company uses its assets to generate profit.

ROA shows how well the hotel resort uses its assets (such as property, equipment, etc.) to generate profit. A higher ROA means the company is more effective at generating income from its assets, which is crucial in asset-intensive industries like hospitality.

$$ROA=(\text{Net Income}/\text{Total Assets})\times 100$$

Independent Variables

2. Solvency Ratio (SOLV)

The solvency ratio measures a company's ability to meet its long-term obligations. It reflects the portion of assets financed by equity rather than debt.

In the hotel resort industry, a higher solvency ratio indicates stronger financial stability and the ability to withstand downturns, which can attract investors. A healthy solvency ratio allows a hotel to invest in growth opportunities without over-leveraging, thus leading to sustainable profitability.

$$\text{Solvency Ratio}=(\text{Net Income}+\text{Depreciation})\times 100/\text{Total Liabilities}$$

3. Firm Size (Total Assets)

Firm size is often measured by total assets, representing the overall scale of a company's resources. It includes assets like properties, equipment, and inventory.

Larger firms often have economies of scale, which can reduce operational costs per unit and increase profit margins. In the hotel industry, larger resorts might benefit from higher brand recognition, better bargaining power with suppliers, and diversified revenue streams, all of which can contribute to profitability positively `.

$$\text{Firm Size}=\text{Total Assets}$$

4. Cash Flow to Operating Revenue Ratio (CFOR)

CFOR measures the cash flow generated from operations relative to operating revenue. It indicates how much cash is being produced from each unit of revenue. CFOR is crucial for liquidity and operational efficiency. In the hotel resort industry, strong cash flows enable timely reinvestment in facilities, marketing, and service improvements, enhancing customer satisfaction and revenue growth. High CFOR suggests that the resort is efficiently converting revenue into cash, which supports sustainable profitability.

$$CFOR=(\text{Cash Flow from Operations}/\text{Operating Revenue})\times 100$$

5. Net Asset Turnover (NAT)

Net asset turnover measures how effectively a company uses its assets to generate revenue. It reflects the efficiency of asset utilization. For hotel resorts, high asset turnover means that assets like rooms, restaurants, and amenities are effectively generating revenue. This metric is particularly relevant in industries with large investments in physical assets, as it shows how well the hotel is using its resources to produce sales. High NAT typically correlates with better profitability, as it reflects efficient use of assets.

$$NAT=\text{Operating Revenue}/\text{Net Assets}$$

The analysis was conducted using multiple regression analysis with the least squares method to evaluate the impact of each variable on ROA. Data processing and analysis were performed using EViews software, enabling accurate modeling and interpretation. This study aims to provide insights into the intrinsic factors contributing to profitability within the hotel industry.

Model

A multiple linear regression model was chosen to analyze the relationship between the dependent variable i.e. ROA and the independent variables.

The Least Squares Method was applied to minimize the sum of the squared residuals i.e. the differences between observed and predicted values across all data points.

The regression analysis is conducted using EViews software, which automatically calculates coefficients, standard errors, and performs statistical tests.

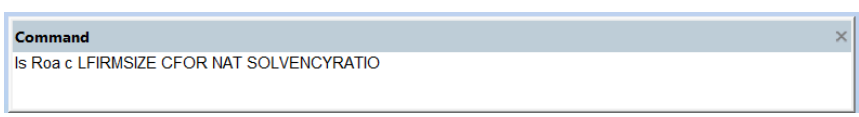
The model to be analyzed in this research is as follows:

$$ROA=\beta 0+\beta 1\ LFIRMSIZE+\beta 2\ CFOR+\beta 3\ NAT+\beta 4\ SOLVENCYRATIO+\epsilon$$

where:

- ROA is the Return on Assets (dependent variable, a measure of profitability)
- B0 is the constant term
- βi…k, are the regression coefficients
- LFIRMSIZE is the log-transformed Firm Size (Total Assets)
- CFOR is the Cash Flow to Operating Revenue Ratio
- NAT is the Net Asset Turnover
- SOLVENCYRATIO is the Solvency Ratio
- ϵ is the error term

This equation reflects the relationship being analyzed, where ROA (profitability) is influenced by Firm Size, Cash Flow Operations Revenue, Net Asset Turnover, and Solvency Ratio.



Model diagnostics

- Adjusted R-square

Equation: UNTITLED Workfile: BA 2 - SHEET3 (2)::U...

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: ROA
Method: Least Squares
Date: 11/05/24 Time: 17:03
Sample (adjusted): 1 102
Included observations: 68 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	68.64141	23.25933	2.951135	0.0044
LFIRMSIZE	-7.492866	4.829763	-1.551394	0.1258
CFOR	0.024386	0.037532	0.649735	0.5182
NAT	50.84306	1.625110	31.28592	0.0000
SOLVENCYRATIO	0.249590	0.887104	0.281354	0.7794

R-squared	0.949231	Mean dependent var	114.2746
Adjusted R-squared	0.946007	S.D. dependent var	310.7786
S.E. of regression	72.21349	Akaike info criterion	11.46782
Sum squared resid	328531.6	Schwarz criterion	11.63102
Log likelihood	-384.9058	Hannan-Quinn criter.	11.53248
F-statistic	294.4776	Durbin-Watson stat	1.863164
Prob(F-statistic)	0.000000		

- R-squared: 0.949231, i.e approximately 94.92% of the variation in ROA is explained by the model.
- Adjusted R-squared: 0.946007, is slightly lower but still shows a strong fit, the model explains most of the variance in ROA.

- S.E of Regression
  - An SE of regression of 72.21 means that, on an average, the observed values deviate from the predicted values by about 72.21. This measures the model's accuracy in predicting the ROA.
- Autocorrelation
  - The Durbin-Watson statistic is 1.863164, which is close to 2, indicating that there is no significant autocorrelation in the residuals.

Equation: UNTITLED Workfile: BA 2 - SHEET3 (2)::U...

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Variance Inflation Factors
Date: 11/05/24 Time: 17:32
Sample: 1 104
Included observations: 68

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	540.9965	7.054507	NA
LFIRMSIZE	23.32661	6.547938	1.160497
CFOR	0.001409	1.012501	1.010899
NAT	2.640982	1.236177	1.157869
SOLVENCYRATIO	0.786954	1.091167	1.004234

- The VIF (Variance Inflation Factor) values for all variables in this model are below 10. This shows no significant multicollinearity concerns among the predictors i.e. the variables are not highly correlated with each other, which is good for the model.
- With low multicollinearity, the coefficients for the variables are considered reliable. This means that each predictor's estimated effect on the outcome is not distorted by relationships with other independent variables, allowing more better interpretation of the model's results.

- Heteroscedasticity

Equation: UNTITLED Workfile: BA 2 - SHEET3 (2)::Unt...

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.429425	Prob. F(4,63)	0.0568
Obs*R-squared	9.087244	Prob. Chi-Square(4)	0.0590
Scaled explained SS	45.87227	Prob. Chi-Square(4)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 11/05/24 Time: 17:20
Sample: 1 102
Included observations: 68

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16092.44	5160.882	3.118156	0.0027
LFIRMSIZE	-2782.266	1071.649	-2.596247	0.0117
CFOR	2.391314	8.327773	0.287149	0.7749
NAT	232.9734	360.5865	0.646096	0.5206
SOLVENCYRATIO	40.93670	196.8345	0.207975	0.8359

R-squared	0.133636	Mean dependent var	4831.348
Adjusted R-squared	0.078629	S.D. dependent var	16692.74
S.E. of regression	16023.05	Akaike info criterion	22.27213
Sum squared resid	1.62E+10	Schwarz criterion	22.43533
Log likelihood	-752.2524	Hannan-Quinn criter.	22.33679
F-statistic	2.429425	Durbin-Watson stat	1.788839
Prob(F-statistic)	0.056802		

The Breusch-Pagan-Godfrey test is a test for heteroskedasticity, where the variance of residuals (errors) is not constant across all levels of an independent variable.

Obs*R-squared: 9.087244, with a p-value of 0.0590>0.05 indicating no strong evidence of heteroskedasticity.

Scaled explained SS: 45.87227, with a p-value of 0.0000<0.05 shows some level of heteroskedasticity in the model.

- Model Misspecification

Equation: UNTITLED Workfile: BA 2 - SHEET3 (2)::U...

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Ramsey RESET Test
Equation: UNTITLED
Specification: ROA C LFIRMSIZE CFOR NAT SOLVENCYRATIO
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	3.313705	62	0.0015
F-statistic	10.98064	(1, 62)	0.0015
Likelihood ratio	11.08807	1	0.0009

This output provides the results of the Ramsey RESET (Regression Specification Error Test), used to detect potential model misspecification. The test checks if higher-order terms of the fitted values should be included in the model to improve its specification. Here's an interpretation of the results:

Ramsey RESET Test Results

1. t-statistic: 3.313705 with a p-value of 0.0015.
2. F-statistic: 10.98064 with a p-value of 0.0015.
3. Likelihood Ratio: 11.08807 with a p-value of 0.0009.

These p-values are all below 0.05,showing that the null hypothesis assuming no misspecification can be rejected. This suggests that the model might be misspecified.

Interpretations of Model results

Interpretation of coefficients:

- C (Constant): The constant term is 68.64141, with a statistically significant p-value of 0.0044, indicating that it contributes to the model.
- LFIRMSIZE: The coefficient for LFIRMSIZE is -7.492866, with a p-value of 0.1258, suggesting that it has a negative but not statistically significant impact on ROA.
- CFOR: The coefficient for CFOR is 0.024386, with a high p-value of 0.5182, indicating that it is not statistically significant.
- NAT: The coefficient for NAT is 50.84306, with a highly significant t-statistic (31.28592) and a p-value of 0.0000, showing a strong positive impact on ROA.
- SOLVENCYRATIO: The coefficient for SOLVENCYRATIO is 0.249590, with a high p-value of 0.7794, indicating no statistically significant effect on ROA.

Statistical Significance:

- Only NAT is statistically significant (p-value < 0.05), suggesting that Net Asset Turnover has a positive and strong effect on ROA. Other variables (LFIRMSIZE, CFOR, and SOLVENCYRATIO) do not show statistically significant effects on ROA.

Results and Analysis

The model explains the variance in ROA (high R-squared value) largely, but only NAT (Net Asset Turnover) has a statistically significant positive effect on ROA. The variables of Firm size, Cash flow Operating revenue and Solvency ratio do not have a significant impact on ROA in this model. Therefore, increasing Net Asset Turnover may be beneficial for improving ROA, while the other variables might not meaningfully contribute to profitability as measured by ROA.

Conclusion

The study on the intrinsic determinants of profitability in the hotel resort industry in India has revealed important insights. We have seen that of the four intrinsic factors only NAT significantly impacts profitability. This concludes that it is the efficiency with which a hotel goes about using its assets for generating revenue is the variable that actually matters in raising the profitability.

Interestingly, statistical influence factors like firm size, cash flow, or the solvency ratio over ROA is not very important. This means that no assurance is provided either to large hotels that such firms, by their significant sizes or sound financial stabilities, or small-size firms maintaining liquidity that they can achieve growth in profit levels. Only proper utilization of assets for revenue production may generate profitability in the Indian hotel resorts industry according to the analysis of regression coefficients .

These findings support asset optimization as the preferred strategy for profit maximization. For hotel managers and stakeholders in the hotel industry in India, this would entail developing strategies on how best to use what they have at hand, such as an increase in occupancy rate, memories created for guests, and streamlining property operations. Further studies in determining other intrinsic and extrinsic factors that influence hotel's profitability could be carried out. More research in this area would probably give an even clearer picture of what drives profitability in the hotel industry.

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