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Determinants of Financial Stability: Case of European Hotel Companies*

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Abstract

One of the most significant aspects of the going concern concept is the company's financial stability, particularly in industries exposed to high cyclicality and external shocks. Financially stable business operations assume an adequate relationship between the structure of the company's assets and its financing sources. This relationship is known as the golden rule of financing, in which long-term sources must finance fixed assets and a portion of current assets (net working capital). Asset management and the realisation of sufficient operating revenues to achieve and maintain financial stability are especially challenging in the hotel segment of the hospitality industry. Thus, the paper examines the financial position and performance of European hotel companies. The objective of this research is to investigate the significant determinants of the financial stability of hotel companies. For research purposes, we gathered financial data for 210 hotel companies from 2010 to 2016. As a measure of financial stability, we applied the debt service coverage ratio (DSCR). We conducted the analysis using panel data, appropriate assumption tests, and descriptive statistics. The results show that financial stability, as measured by DSCR, in European hotel companies is primarily determined by profitability (return on assets - ROA), dynamic solvency (interest coverage ratio - ICR), and overall activity (total asset turnover - TAT). Furthermore, the research concludes that financial leverage and liquidity do not significantly determine financial stability.

Keywords: adequate financial stability, debt service coverage ratio, financial ratios, financial position, financial performance

JEL Code: **D81, M21, M41**

Introduction

Indisputably, one of the ultimate objectives of any business is to increase the wealth of shareholders. However, shareholders are equally eager for sustainable business and financial stability. One of the most important accounting concepts is the going concern basis. The International Auditing and Assurance Standards Board (2025) states that an entity that operates and prepares its financial statements on a going-concern basis will continue to operate for the foreseeable future (IAASB, 2025). It also states that it is appropriate to adopt this concept when the entity can realise its assets and settle its liabilities during the normal operating cycle (IAASB, 2025). Accordingly, for an entity to operate on the going concern basis, it must have an adequate asset and liability structure, i.e., be financially stable. Thus, companies without adequate financial stability may go bankrupt.

Therefore, the focus of managers and other stakeholders should not be limited only to financial performance but also to adequate financial stability. According to Pratt and Grabowski (2014), adequate financial stability assumes the ability to settle a company's due financial liabilities. When a company is not able to settle its financial

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liabilities, there is not adequate financial stability, and this company is facing the risk of financial distress (Toton, 2002; Chena, Maob and Hu, 2015; Blanc-Brude & Hasan, 2016; De Marco & Mangano, 2017; Sun, Jia and Wang, 2019). A company can achieve an adequate financial position and financial stability through an appropriate asset structure that generates sufficient operating income (revenues) to cover operating expenses. In this sense, achieving sufficient income is particularly challenging in capital-intensive industries, such as the hotel industry. Because a company generates cash through its activities, reflected in operating revenues, the net operating income, calculated as the difference between operating revenues and operating expenses, is a significant financial statement element for all stakeholders. Therefore, stakeholders typically use net operating income to evaluate a company's financial performance.

Furthermore, because financial performance and position are conditional, the indicator is often used in financial stability assessments. Overall, a company's financial stability reflects an adequate balance between assets and sources of financing, in line with the 'golden rules of financing'. As an important criterion for the financial sustainability of a business, most research to date focuses precisely on the profitability (Cengiz et al., 2025; Aznar et al., 2016; Sandvik et al., 2014) of hotel companies, and determinants of financial stability in the European hotel sector remain insufficiently explored in the existing literature. Therefore, the subject of this paper is the financial position and financial performance of European hotel companies, with the research objective of identifying the significant determinants of their financial stability. Thus, the rest of the paper is structured as follows: the second section presents the theoretical background and variable definitions, the third section covers the methodology and research results, and the fourth section provides the conclusion and discussion.

Theoretical background

Stakeholders can evaluate the company's financial stability using various key performance indicators (KPIs). In that context, banks often use the debt service coverage ratio (DSCR) to assess creditworthiness. One approach to calculating the DSCR is to divide net operating income by total debt service (TDS). Furthermore, TDS includes the increase in debt principal plus interest expenses, net of income taxes. Considering the paper's objective, the DSCR is the subject of the research and, consequently, the dependent variable in the model. Therefore, for research purposes, the DSCR will be calculated as follows (1):

$$DSCR = \frac{NOI}{TDS} \tag{1}$$

where:

DSCR – debt service coverage ratio
NOI – net operating income
TDS – total debt service obtained as (interest expenses * (1 – income tax rate)) + total liabilities.

The marginal value of the DSCR is 1. If DSCR is greater than 1, net operating income exceeds short-term financial liabilities, and the company can generally settle its financial liabilities. Gettel introduced DSCR as a measure of financial solvency in 1978. One idea behind DSCR is that assets should generate sufficient free cash flows to cover liabilities related to their financing, meaning that a DSCR of 1 represents the solvency threshold (Pratt & Grabowski, 2014). A DSCR below 1, as described by Bruce-Brude and Hasan (2016) as a hard default, indicates that a business is not generating enough free cash flows to repay its financial liabilities. Therefore, DSCR is deemed one of the most critical measures for debt repayment capacity (Rastogi & Saxena, 2016). According to De Marco and Mangano (2017), practitioners increasingly use DSCRs above 1 as covenants. Chena, Maob, and Hu (2015) state that the DSCR minimum level demanded by financial institutions ranges from 1.1 to 1.25.

One of the DSCR indicator ideas is to analyse whether free cash flows (FCF) are sufficient to settle a company's current financial liabilities. Instead of the FCF, the formula can include EBITDA as the numerator. Taking EBITDA instead of FCF neglects investment in working capital and corporate income tax. Additionally, there is an assumption that investment in capital expenditures (CAPEX) equals depreciation in that case. However, practitioners often calculate DSCR as a ratio of NOI to TDS for practical reasons.

Table 1: Variables used in the research

Financial ratio	Code	Formula
Debt service coverage ratio	DSCR	net operating income / total debt service
Total debt service	TDS	(interest expenses * (1 – income tax rate)) + total liabilities
Current ratio	CR	current assets / current liabilities
Working capital change	dWC	[(AR(t) – AR(t-1)) + (INV(t) – INV(t-1))] / (AP(t) – AP(t-1)) where: AR – accounts receivable in period *t* and *t-1* INV – inventories in period *t* and *t-1* AP – accounts payable in period *t* and *t-1*
Debt-to-equity	D/E	total liabilities / equity
Interest coverage ratio	ICR	earnings before interest and taxes / interest expenses
Total assets turnover	TAT	total operating revenues / total assets
Fixed assets turnover	FAT	total operating revenues / fixed assets
Fixed assets changes ratio	dFA	[fixed assets(t) – fixed assets(t-1)] / fixed assets(t-1)
return on assets	ROA	[net income + interest expenses] / total assets
financial stability ratio	FSR	fixed assets / [equity + long-term debt]
Region	REG	five regions (Mediterranean, Western Europe, Central Europe, Eastern Europe, Northern Europe) divided into two categories
Size	LogTA	natural logarithm of total assets
Growth	Growth	[OR(t) – OR(t-1)] / OR(t-1) where: OR – operating revenues in period *t* and *t-1*

The company's financial stability requires a favourable financial position and financial performance sufficient to cover its liabilities. Thus, the paper's research objective is to investigate which accounting aspect is most significantly related to adequate financial stability, as measured by DSCR. In that context, the analysed KPIs relate to crucial business aspects such as liquidity, indebtedness, activity, investments, and profitability. Based on the literature review and our professional judgment, we selected one or more financial ratios commonly used to measure a particular financial aspect of a company's operations (

Table *1*).

Stable **liquidity** ensures the company's favourable financial position. We used the two most popular financial ratios to measure liquidity: the current ratio and the change in working capital ratio. On the one hand, the current ratio can be considered a measure of static liquidity, and on the other, changes in working capital measure dynamic liquidity. The current ratio (CR) evaluates a company's ability to cover current liabilities with current assets. Hence, a value of 2 is traditionally considered adequate in the general literature. However, analysts should consider additional business factors – such as industry characteristics, asset turnover, and the age structure of inventories and accounts receivable – before drawing conclusions about an entity's liquidity. Additionally, capital-intensive and seasonal industries such as hospitality may operate with considerably lower current ratios, reflecting their specific asset structure and cash flow patterns. Apart from CR, which has not lost significance over the years, the working capital changes (dWC) ratio is another financial ratio that evaluates a company's liquidity from a dynamic perspective. Furthermore, we can say that dWC evaluates changes in the company's liquidity between

two periods. Therefore, the nominator of the ratio includes changes in accounts receivable and inventory, and the denominator includes changes in accounts payable between two periods. Thus, if the value of the dWC is higher than one, a company's liquidity position improves over time relative to the previous period, whereas the opposite holds when the ratio is below one. However, it should be noted that dWC captures only the direction of change in liquidity, not the absolute level – a company with dWC above one may still face liquidity difficulties if its starting liquidity position was unfavourable. In general, working capital management is closely related to a company's profitability. Therefore, liquidity management is an essential aspect of achieving and maintaining adequate financial stability and the company's preferred financial performance. Some companies tie bonuses to key performance indicators for accounts receivable or inventory to improve liquidity management. However, the working capital ratio has some limitations. Firstly, the working capital ratio does not reflect free cash flows and is calculated solely from balance sheet figures, neglecting financial performance during the period. Secondly, there might be financial shenanigans involving overvalued receivables or inventories, and, consequently, the working capital ratio might be overstated. Finally, working capital ratios differ significantly across industries, though a ratio below 1 is usually deemed inadequate. Nevertheless, despite all these limitations, working capital remains a crucial indicator of companies' liquidity.

Another significant dimension of financial stability is credit, financial, and currency risks, including the ability to meet credit obligations and the risk of changes in interest and exchange rates. To manage those risks, companies have to manage their indebtedness. Therefore, **solvency**, as well as liquidity, can be assessed on both static and dynamic bases. To investigate the significance of indebtedness to financial stability, we used two financial ratios: the debt-to-equity ratio and the interest coverage ratio. Debt-to-equity (D/E) ratio, as a measure of static solvency, is often used as a KPI and is widely known as a measure of financial leverage. The ratio gives information on the structure between external (debt) and internal financing sources (equity). When the ratio is below one, the company finances less than 50% of its assets with external sources. Thus, although the company does not rely mainly on financial leverage for its business operations, this does not mean the company is debt- and burden-free. Furthermore, according to Madan (2007), a debt-to-equity ratio of up to 60% indicates moderate risk for creditors, while ratios above 60% indicate high risk. Thus, high financial leverage may imply financial instability and increased financial risks. Additionally, a high debt-to-equity ratio might reflect limitations imposed by creditors on strategic decisions. Thus, creditors may limit the level of indebtedness or impose restrictions on certain types of investments until a lower debt-to-equity ratio is reached. Furthermore, the ratio is directly related to the weighted average cost of capital (WACC) and indirectly to the companies' profitability. According to research by Frank and Goyal (2009), more profitable companies have lower debt-to-equity ratios, indicating that more profitable companies are more financially stable. An additional conclusion is that companies with a higher ratio do not use financial leverage adequately. On the other hand, the most popular dynamic solvency ratio is the interest coverage ratio (ICR), calculated as earnings before interest and taxes (EBIT) divided by interest expense. Analysts should consider the ratio as a supplement to the static indebtedness analysis to draw broad conclusions about the company's solvency. A ratio above 1 indicates that the company generates earnings for its owners. Thus, a higher indicator value indicates greater returns for shareholders. Otherwise, the company does not generate EBIT to cover interest expenses when the ICR is below one. Overall, with a favourable D/E ratio but an unfavourable ICR, high credit risk exists; the reverse is also true. If a company relies heavily on financial leverage and its ICR is high, its solvency is acceptable.

The company's **activity** is a significant factor in financial stability and in the adequacy of its asset structure and sources of financing. Accordingly, analysts usually evaluate the company's activity by using various turnover ratios modified to the circumstances, of which the most important is the industry. However, regardless of industry, the total asset turnover ratio is a comprehensive and essential KPI of the company's ability to utilise assets to generate revenue. Considering that this research covers companies from the hotel industry as a part of the hospitality industry, next to total assets turnover (TAT), we calculated two additional modifications of activity ratios: fixed assets turnover (FAT) and fixed assets changes ratio (dFA). As is well known, the accommodation services industry is capital-intensive, resulting in low asset activity. Thus, next to TAT, it is beneficial to assess the effectiveness of their most significant assets. For the given industry, the expected value of TAT is significantly below 1, meaning that, in most cases, for each monetary unit held in assets, hotels generate less than 1 monetary unit of total revenue. Furthermore, FAT provides information on how many monetary units of total revenues the company generates per one monetary unit of fixed assets. Finally, the dFA represents an investment ratio for fixed assets. It represents the ratio of changes in fixed assets between two periods and the fixed assets value. A positive value for dFA indicates an increase in fixed assets between the two periods, and a negative value indicates a decrease.

Finally, the company's **profitability** indirectly determines its financial stability. Suppose a company operates profitably, its equity and assets increase, which leads to the improvement of the solvency, i.e., the financing

source's structure and the relationship between the structure of assets and financing sources. The most significant measure of a company's profitability is return on assets (ROA). The ROA indicates the ability of the company to generate net earnings before interest expenses by engaging total assets. Additionally, it enhances the company's efficiency in generating earnings sufficient to pay debt service and provide returns to shareholders. Although we calculate ROA using data from the balance sheet's book value, its comprehensiveness makes it comparable to WACC and is usually the most important KPI in strategic management.

To enhance the research's internal validity, we included four control variables in the model. The first is the financial stability ratio (FSR), calculated as a ratio of fixed assets and long-term financing sources (equity and long-term debt). The ratio assesses financial stability from a liquidity perspective, unlike DSCR, which focuses on covering total debt service (TDS). Furthermore, we included region (REG) as a control variable to account for differences in guest attraction related to geographical location. Eventually, the literature recognises two significant control variables, usually included in the studies: the natural logarithm of total assets (LogTA) and the growth rate, measured as the relative change in total operating revenues (Growth).

Finally, the research aims to investigate which aspects of financial business results significantly impact financial stability. Thus, the research objective is to examine determinants of a company's financial stability. Additionally, we will investigate average financial stability, liquidity, solvency, and profitability for financially stable and unstable European hotel companies. Therefore, the research includes two research hypotheses:

H1. Financial position and financial performance significantly affect the financial stability of European hotel companies.
H2. The financially stable companies achieve significantly favourable financial positions and financial performance.

We divided the paper into three main parts. After the introduction, which introduces the theoretical background of the research, the second chapter covers the methodology used and the research results. The third and final chapter of the paper includes the conclusion, discussion, limitations of the research, and final considerations.

Methodology and Research Results

To conduct the research, we gathered the data from the TP Catalyst database. The initial sample included 295 European tourism companies with operating revenues exceeding 17 million euros. The data were collected over the period 2009 to 2016, yielding a total of 2,169 observations. The obtained database is unbalanced, as it was impossible to collect data for every company in every observed year. The database consists of the following financial elements: operating revenues, EBIT, net profit, long-term debt, short-term debt, equity, total assets, fixed assets, current assets, current liabilities, accounts receivable, accounts payable, inventory, financial expenses, and employees' numbers.

As a first step, we calculated DSCR for all observations and secondly removed all outliers. Next, we calculated the previously elaborated financial ratios for all observations. Eventually, we excluded all observations from 2009, considering that we extensively use lagged variables.

Table 2: Number of analysed hotel companies per year and region

	2010		2011		2012		2013		2014		2015		2016	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Central Europe	21	9%	23	10%	23	11%	22	9%	23	9%	22	9%	19	8%
Eastern Europe	6	3%	6	3%	7	3%	7	3%	7	3%	8	3%	7	3%
Mediterranean	46	19%	43	18%	44	21%	44	18%	46	19%	43	19%	46	19%
Northern Europe	105	44%	106	45%	104	50%	107	44%	112	45%	103	44%	102	43%
Western Europe	61	26%	60	25%	32	15%	61	25%	60	24%	56	24%	65	27%
Source: Authors' calculation														

Finally, after removing outliers from the sample and data for 2009, the number of observations covered by the research is 1,499, including 210 companies in 2012, 248 companies in 2014, and an average of 235 companies per year. Table 2 shows that most companies come from Northern Europe, followed by Mediterranean Europe.

The data used in the models span seven years (2010-2016) and include a maximum of 248 companies, forming a panel data set with two segments: company (id) with $i = 1, \dots, N,\ N = 248$ and year (t) with $i = 1, \dots, T,\ T = 7$. As a result, the data represent a panel or longitudinal data (Wooldridge, 2020; Baltagi, 2005). Thus, the obtained data are analysed using an appropriate panel data model. Generally, the model including the error term (ε_{it}) can be written as follows (2):

$$y_{it} = \beta_0 + x_{it}\beta_i + \alpha_i + \varepsilon_{it} \quad (2)$$

where y_{it} represents dependent and x_{it} independent variables, t is time aspect of the database, α_i represents unobserved characteristics for each i company, which we considered as constant over time, sometimes called an individual effect or individual heterogeneity, ε_{it} represents idiosyncratic errors or idiosyncratic disturbances because these change across t as well as across i (Wooldrige, 2010, pp. 282-285). To estimate the parameters β_K, we applied the two most widely used methods: the fixed effects (FE) and random effects (RE) approaches. Economically speaking, researchers use the FE when they want to conclude only from the sample, and the RE when they want to draw general conclusions. Nevertheless, to apply any of the methods, the data must fulfil certain assumptions regarding heteroscedasticity and autocorrelation. In our case, tests support the FE approach, which we can take as appropriate, given that the sample covers the major and largest hotel companies in Europe, which generate most operating revenues.

Additionally, we recoded the DSCR variable as a binary variable to test the second research hypothesis: 1 for companies with a DSCR above 1 and 0 for companies with a DSCR below 1. We tested the second research hypothesis using a nonparametric Mann-Whitney U test due to the lack of normality in the observed variables (

Table ***3***). We used the test to compare the differences between two independent groups for variables that determine financial stability: total assets turnover, interest coverage ratio, and return on assets.

Table 3: Descriptive statistics for chosen financial ratios (years averages)

KPI	N	Mean	Std. Deviation	Minimum	Maximum	Kolmogorov-Smirnova		Shapiro-Wilk	
						Statistic	Sig.	Statistic	Sig.
DSCR	1,499	0.219	0.957	-4.950	4.860	0.258	0.000	0.658	0.000
dFA	1,640	-0.094	2.347	-83.610	0.990	0.368	0.000	0.108	0.000
FAT	1,647	0.710	0.262	0.000	0.990	0.146	0.000	0.856	0.000
TAT	1,647	0.896	1.114	0.020	10.480	0.225	0.000	0.693	0.000
FSC	1,609	1.696	6.030	-24.810	153.870	0.376	0.000	0.221	0.000
CR	1,647	3.569	62.342	0.030	2,169.980	0.477	0.000	0.021	0.000
dWC	1,643	-0.059	218.212	-6,260.240	5,977.450	0.441	0.000	0.040	0.000
ICR	1,531	8.288	65.097	-1,122.680	642.770	0.316	0.000	0.425	0.000
D/E	1,641	8.904	253.431	-1,139.180	8,275.140	0.476	0.000	0.025	0.000
ROA	1,647	0.036	0.231	-2.490	7.740	0.210	0.000	0.502	0.000
Source: Authors' calculation									

The results show that the average DSCR is below 1, indicating that, on average, the analysed hotel companies are not financially stable (the KPI threshold is 1). Nevertheless, companies can cover 22% of their total debt service by earnings before interest and taxes. Furthermore, the fixed assets of the analysed companies decrease. Equal average values of fixed assets turnover (FAT) and total assets turnover (TAT) indicate that companies either do not have, or have extremely low, current assets in their balance sheets. The financial stability ratio (FSR) confirms the unfavourable financial stability of the analysed companies, considering its average value above one. Interestingly, the average liquidity of the analysed companies is significantly above the standard, but the working

capital changes indicate an average decrease in liquidity over the years. Furthermore, the dynamic solvency of the observed companies is also favourable, with ICRs over 1. On the other hand, static solvency indicates a high reliance on debt to finance assets. Altogether, an excellent interest coverage ratio substitutes for a bad debt-to-equity ratio. Finally, the analysed hotel companies, on average, achieved a return of 3.6% on total assets.

Table 4: Mean and median for analysed companies by region and year

Year	Central Europe		Eastern Europe		Mediterranean		Northern Europe		Western Europe	
	Mean	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**	**Mean**	**Median**
2010	0.296	0.060	-0.648	0.075	0.038	0.035	0.165	0.080	0.151	0.050
2011	-0.042	0.030	0.190	0.110	0.108	0.060	0.316	0.090	0.281	0.075
2012	0.263	0.055	-0.049	0.060	0.241	0.055	0.180	0.090	0.197	0.095
2013	0.078	0.025	0.003	0.060	0.364	0.065	0.226	0.095	0.167	0.050
2014	0.244	0.020	0.614	0.160	0.588	0.060	0.393	0.110	0.125	0.035
2015	-0.205	0.060	0.518	0.185	0.453	0.090	0.207	0.110	0.103	0.120
2016	-0.117	0.070	0.450	0.350	0.382	0.115	0.335	0.105	0.025	0.060
Source: Authors' calculation										

The average and median DSCR values indicate a lack of financial stability across the analysed companies, by year and region (

Table ***4***). The lowest indicator level across all observed years is for Western Europe (France, Spain, Portugal). On the other hand, hotel companies in Central Europe (Austria, Czechia, Germany, Switzerland, and Slovenia) show higher volatility of the indicator. Eastern (Poland, Hungary, Bulgaria, Romania) and Mediterranean Europe (Croatia, Greece, Italy) companies achieved the highest average DSCR from 2014 to 2016. Finally, companies from Northern Europe (Belgium, the Netherlands, Denmark, the United Kingdom, Ireland, Norway, Sweden, Finland) show a stable, slightly increasing trend. For research purposes, we created a control variable representing the region as a dummy variable; i.e., we divided hotel companies into two categories: 1 (Mediterranean and Western Europe) and 0 (Central Europe, Eastern Europe, and Northern Europe).

Table 5: Correlation coefficients for the observed financial ratios

	DSCR	Growth	dFA	FAT	TAT	FSC	CR	ΔWC	ICR	D/E	ROA
DSCR	1	.055*	-0.003	-0.005	0.012	-0.015	-0.005	-0.018	.594**	-0.01	.254**
		0.033	*0.917*	*0.856*	*0.656*	*0.561*	*0.832*	*0.494*	*0.000*	*0.703*	*0.000*
Growth	.055*	1	-.064**	0.008	0.043	-0.023	-.080**	0.004	0.031	-0.012	.284**
	0.033		*0.01*	*0.745*	*0.082*	*0.354*	*0.001*	*0.862*	*0.228*	*0.614*	*0.000*
dFA	-0.003	-.064**	1	.109**	-.139**	0.008	0.001	-0.035	0.002	0.001	-.164**
	0.917	*0.01*		*0.000*	*0.000*	*0.760*	*0.981*	*0.156*	*0.95*	*0.974*	*0*
FAT	-0.005	0.008	.109**	1	-.594**	0.045	0.009	0.022	0.01	0.013	0.006
	0.856	*0.745*	*0*		*0*	*0.071*	*0.711*	*0.371*	*0.705*	*0.587*	*0.807*
TAT	0.012	0.043	-.139**	-.594**	1	0.033	-0.018	-0.002	-.061*	-0.01	.105**
	0.656	*0.082*	*0.000*	*0.000*		*0.191*	*0.475*	*0.933*	*0.017*	*0.689*	*0.000*
FSC	-0.015	-0.023	0.008	0.045	0.033	1	-0.007	0.002	.089**	-0.002	-.070**
	0.561	*0.354*	*0.760*	*0.071*	*0.191*		*0.784*	*0.921*	*0.001*	*0.933*	*0.005*
CR	-0.005	-.080**	0.001	0.009	-0.018	-0.007	1	0.000	-0.002	-0.001	-0.003
	0.832	*0.001*	*0.981*	*0.711*	*0.475*	*0.784*		*0.992*	*0.951*	*0.972*	*0.894*
ΔWC	-0.018	0.004	-0.035	0.022	-0.002	0.002	0.000	1	-0.012	*0.000*	-0.043
	0.494	*0.862*	*0.156*	*0.371*	*0.933*	*0.921*	*0.992*		*0.641*	*0.99*	*0.083*
ICR	.594**	0.031	0.002	0.01	-.061*	.089**	-0.002	-0.012	1	-0.005	.296**
	0.000	*0.228*	*0.95*	*0.705*	*0.017*	*0.001*	*0.951*	*0.641*		*0.837*	*0.000*

D/E	-0.01	-0.012	0.001	0.013	-0.01	-0.002	-0.001	0.000	-0.005	1	-0.008
	0.703	*0.614*	*0.974*	*0.587*	*0.689*	*0.933*	*0.972*	*0.99*	*0.837*		*0.755*
ROA	.254**	.284**	-.164**	0.006	.105**	-.070**	-0.003	-0.043	.296**	-0.008	1
	0.000	*0.000*	*0.000*	*0.807*	*0.000*	*0.005*	*0.894*	*0.083*	*0.000*	*0.755*	
* Correlation is significant at the 0.05 level (2-tailed).											
** Correlation is significant at the 0.01 level (2-tailed).											
Source: Authors' calculation											

Pearson correlation coefficients indicate a statistically significant relationship between the dependent variable (DSCR) and the interest coverage ratio (ICR) at the 1% level and between DSCR and return on assets (ROA) at the 5% level (Table 5). The relationship is medium and positive. Additionally, the DSCR is significantly related to the control variable (Growth), but weakly. Furthermore, return on assets (ROA) is significantly associated with most variables. It is interesting to note the negative relationship between ROA and changes in fixed assets (dFA), which led us to conclude that investments in fixed assets could negatively affect profitability in the short term.

To test the appropriateness of the random-effects model, we used the Breusch-Pagan Lagrange multiplier test, in which the null hypothesis is that there are no random effects. Considering that the chi2 is 52.04 and the p-value is 0.0000, we rejected the null hypothesis. Therefore, we concluded that the random-effects model is preferable to the pooled OLS (ordinary least squares) model. Furthermore, we tested whether the fixed-effects model is superior to the random-effects model using the Hausman test. The null hypothesis says that the coefficient difference is not systematic, i.e., the random-effects model is appropriate. Results based on our data reject the null hypothesis (chi2 = 31.61, p-value = 0.0005), and we accept a fixed-effects model as the most suitable for our research.

Furthermore, the panel data analysis assumes that the effects should be controlled for heteroskedasticity and multicollinearity. We applied widely used variance inflation factors (VIFs) to test for multicollinearity, and for heteroskedasticity, we used the Breusch-Pagan / Cook-Weisberg test. Additionally, the Wooldridge test for autocorrelation, with an F(1, 221) value of 0.863 and a p-value of 0.3538, confirms the absence of autocorrelation. Given that the absence of homoscedasticity can produce biased and misleading parameter estimates, we used the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity. The test results, with chi2 = 26.37 and p-value = 0.0000, reject the null hypothesis and confirm the heteroskedasticity problem. Finally, the VIF results indicate no multicollinearity problem; i.e., the VIFs should not exceed 10, and in our case, all variables are around or below 2 (Table 6).

Table 6: Variance inflation factors for chosen variables

Variable	VIF	1/VIF
TATO	2.17	0.459774
FATA	1.78	0.561545
LogTA	1.62	0.618754
CR	1.26	0.795965
ICR	1.25	0.803205
ROA	1.19	0.843136
FSC	1.16	0.858947
Growth	1.09	0.921232
Region_code	1.05	0.95266
dFAFA	1.03	0.970849
ΔWCratio	1.01	0.991219
DE	1	0.99821
Mean	**VIF**	**1.3**
Source: Authors' calculation		

We applied robust standard errors in a fixed-effects panel regression to address heteroskedasticity (Hoechle, 2007). For comparison, we reported results for random- and fixed-effect models. Table 5 shows that all models

are statistically significant at the overall level (p-value = 0.0000). Thus, although applying robust standard errors weakened the model, the results are similar. In the end, we tested the model's significance by removing control variables (

Table *7*).

Table 7: Panel data analysis results

	Random effects		Fixed effects		Fixed effects (robust)		Fixed effects (robust) without control variables	
	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|	Coef.	P>|z|
dFA	-0.0388	0.0820	-0.0112	0.6500	-0.0112	0.7900	-0.0114	0.7840
FAT	0.2455	0.0950	0.2312	0.3260	0.2312	0.5180	0.1891	0.5920
TAT	**0.1032**	**0.0400**	**0.2774**	**0.0010**	**0.2774**	**0.0370**	**0.2901**	**0.0220**
CR	0.0000	0.9890	0.0001	0.8960	0.0001	0.1900	0.0001	0.3410
dWC	0.0000	0.9220	0.0000	0.7920	0.0000	0.5330	0.0000	0.5350
ICR	**0.0100**	**0.0000**	**0.0094**	**0.0000**	**0.0094**	**0.0000**	**0.0094**	**0.0000**
DE	0.0000	0.9540	0.0000	0.9900	0.0000	0.8130	0.0000	0.9220
ROA	**0.9927**	**0.0000**	**0.8755**	**0.0000**	**0.8755**	**0.0110**	**0.8652**	**0.0110**
FSC	-0.0175	0.0020	-0.0237	0.0020	-0.0237	0.1400	-0.2529	0.3210
Region	0.0552	0.4880	0.0000	(omitted)	0.0000	(omitted)		
LogTA	-0.0041	0.9140	-0.0360	0.7390	-0.0360	0.6960		
Growth	0.0990	0.3790	0.0863	0.4630	0.0863	0.3450		
_cons	-0.1153	0.8080	0.1755	0.8930	0.1755	0.8820	-0.2529	0.3210
R-sq within		0.2849		0.2898		0.2898		0.2837
R-sq between		0.5226		0.4342		0.4342		0.4444
R-sq overall		0.3771		0.3134		0.3134		0.3191
Wald chi2(12)		713.24	F(11,1207)	44.79	F(11,266)	10.08	F(11,266)	18.16
Prob > chi2		0.00000	Prob > F	0.00000	Prob > F	0.00000	Prob > F	0.00000
corr(u_i, Xb)		0 (assumed)		-0.0362		-0.0362		-0.0093
Source: Authors' calculation								

All presented models are statistically significant (p-value = 0.0000), but the robust fixed-effects provide the most reliable results given the heteroscedasticity. The results show that the model captures 28.98% of the variation in the dependent variable (DSCR) within the explanatory variables, indicating that other factors affect DSCR beyond those investigated in the research. Furthermore, in terms of the proportion of variance explained by the dependent variable, the model captures 43.42% of the variation. Finally, overall, it captures 31.34% of variations. It is important to note that accounting for heteroscedasticity and removing control variables did not significantly change the R-squares in the observed models.

The results indicate three statistically significant determinants of the company's financial stability, as measured by DSCR. In line with the results, financial performance has a more significant impact on financial stability than financial position. Of the financial position indicators, only the interest coverage ratio (ICR), a measure of

dynamic solvency, significantly affects the DSCR; the coefficient is very close to zero (0.0094), indicating a very small impact. Interestingly, liquidity measures, in the form of a current ratio (CR) and working capital change (dWC), do not considerably determine financial stability. In contrast, performance measures are significant determinants of financial stability. On the one hand, the total asset turnover ratio (TAT) and, on the other hand, the return on assets (ROA) statistically significantly determine DSCR. Thus, a 1-point increase in ROA, with other items unchanged, will increase the DSCR by 0.8755, and a 1-point increase in TAT will increase the DSCR by 0.2774. Finally, our research confirms that the return on assets is narrowly related to the company's financial stability, as measured by the DSCR. Considering all together, we can partially accept our research hypothesis that financial position and financial performance significantly affect the financial stability of European hotel companies.

We created a new dichotomous variable to test the second research hypothesis: that financially stable companies achieve significantly more favourable liquidity, solvency, activity, investment, and profitability ratios than unstable ones. We assigned code 1 to companies with DSCR> 1 and 0 to others (DSCR < 1). The median DSCR for financially stable companies is 2.34, indicating excellent stability. On the contrary, the median for financially unstable companies is extremely low at 0.07. Descriptive statistics for the two categories show significantly better KPI values for financially stable companies than for unstable companies. The median total asset turnover ratio for financially stable companies is 1.05, indicating that at least half generate more than 1 monetary unit of operating revenue per monetary unit of total assets. By contrast, the median for financially unstable companies is 0.40, suggesting that half generate less than 0.40 in operating revenues per monetary unit of total assets engaged in business operations.

Furthermore, the dynamic solvency of financially stable companies is considerably better. Half of the financially stable companies cover their interest expenses 53.91 times by EBIT, whereas for the unstable ones, that ratio is 1.99. Finally, financially stable companies are much more profitable, with a median ROA of 8.66% compared to unstable companies, among which 50% achieved ROA of 2.64% or less.

Table 8: Differences in chosen financial ratios between financial stable and financial unstable hotel companies

Criterium	Financial ratio	Mann-Whitney U Test		N	Decision
Financial position	CR	105,368	0.0080	1499	Reject the null hypothesis
	D/E	37,398	0.0000	1493	Reject the null hypothesis
	ICR	161,381	0.0000	1494	Reject the null hypothesis
Financial performance	TAT	132,906	0.0000	1499	Reject the null hypothesis
	ROA	146,865	0.0000	1499	Reject the null hypothesis
Source: Authors' calculation					

We apply the Mann-Whitney test to investigate the second research hypothesis, i.e., to compare differences between financially stable and unstable companies for chosen liquidity, solvency, activity, and profitability ratios (Table 8). Researchers apply the test to non-normally distributed data, and it is preferable to rely on the median rather than the mean, which is often influenced by outliers in those cases. The test evaluates differences in distributions between two categories. The null hypothesis says that the distribution is the same across chosen categories (p-value > 0.05). As a measure of financial position, we used the current ratio (CR), the debt-to-equity ratio (D/E), and the interest coverage ratio (ICR). In addition, we used total assets turnover (TAT) and return on assets (ROA) as financial performance indicators. Test results suggest rejecting the statistical null hypotheses for all observed variables, i.e., accepting that the distributions of financial ratios across financially stable and unstable companies differ. Thus, statistically significant differences exist between financial ratios for financially stable (FS) and financially unstable (FU) companies.

Table 9: Descriptive statistics of statistically significant variables by financial stability

	Count	CR		D/E		ICR		TATO		ROA	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
FU	1363	3.9281	0.8164	10.7547	0.5969	2.2618	1.9910	0.7053	0.3992	0.0249	0.0264

FS	136	1.8250	1.0764	0.1290	0.0844	77.7916	53.9120	1.4258	1.0460	0.0802	0.0866
Source: Authors' calculation											

Descriptive statistics results show better financial ratios for financially stable companies than for financially unstable companies across all KPIs, except the current ratio (CR) for the mean. Nevertheless, the median of CR is better for financially stable companies (Table 9). Among financially stable companies, the median current ratio is 1.08, indicating that at least half of them can cover current liabilities with current assets. Furthermore, their median debt-to-equity ratio of 0.08 indicates very low reliance on debt financing relative to equity financing. In contrast, the median interest coverage ratio of 53.91 confirms a strong capacity to service debt obligations. Additionally, at least half of financially stable companies achieve a total assets turnover above 1.05 and a return on assets of at least 8.66%. For the remaining 50% of observations, the results are even more favourable. By contrast, among financially unstable companies, the median current ratio of 0.82 indicates that at least half are unable to cover current liabilities with current assets fully. Their median debt-to-equity ratio of 0.60 reflects considerably higher reliance on debt. In contrast, the median total assets turnover of 0.40 and the median return on assets of 2.64% confirm substantially weaker operational and financial performance. Taken together, these findings support the second research hypothesis that financially stable hotel companies achieve significantly more favourable financial positions and business performance than their financially unstable counterparts.

Conclusion

Taking into account the fact that financial stability is one of the fundamental determinants of financially sustainable business operations with the going concern concept, this paper deals with specifying the determinants of financial stability of European hotel companies as a sector in which there are significant challenges in maintaining sufficient business activity in the context of generating satisfactory operating income in relation to available assets, which in such companies are significant and crucial for performing their activities. We conducted the research by using a sample of 248 European companies for the period from 2010 to 2016. The results of the conducted research show that the financial stability of hotel companies is mainly determined by their financial performance, as measured by return on assets (ROA). Additionally, the activity (TAT) of hotel companies affects their financial stability and their ability to cover interest expenses with earnings before interest and taxes (EBIT). Therefore, after identifying crucial financial stability determinants, we investigated whether financially stable companies have significantly more favourable financial positions and performance than financially unstable hotels. The Mann-Whitney test confirmed significant differences between the two observed categories. Thus, financially unstable hotels have higher debt levels, lower solvency, asset activity, and profitability. Overall, those companies have worse financial positions and performance than financially stable hotels. In contrast, financially stable companies, on average, finance most of their assets with equity, do not have problems covering their interest expenses, and achieve a significantly better return on assets. Given that the financial stability of European hotel companies is not favourable, their business strategy should focus on increasing profit by boosting asset turnover. Therefore, our results align with external factors in hotels' business operations and known industry limitations, with seasonality being the most important for most companies. Furthermore, as a capital-intensive and seasonal industry, they are often limited in achieving high asset turnover. Therefore, attracting more guests, increasing the average number of overnight stays, and implementing other policies could help fill available hotel capacity and increase asset turnover. Following the DuPont system, a higher turnover ratio would result in a greater return on assets, ultimately improving financial stability, as measured by DSCR.

It is important to note that the research has certain limitations that we need to highlight. First, the sample of companies is limited exclusively to large European companies with an asset value of more than 17 million euros, thereby excluding smaller hotels that structurally make up a significant share and limiting the possibility of generalising the results. Also, we analysed data from 2010 to 2016, so future research would be useful to investigate the impact of shocks such as the Covid-19 pandemic or crises caused by war circumstances on the financial stability of such companies, since this is an industry for which demand is extremely elastic and sensitive to prices, i.e. inflation and people's living standards. Finally, TDS was estimated based on the company's total liabilities rather than annual principal repayments due to limited data availability. Also, future research may include market indicators as relevant variables, rather than relying exclusively on accounting indicators.

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