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A Panel Study on Capital Structure and Profitability in the MENA Region Tourism Industry

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Abstract *Finding the optimal debt-equity balance is always challenging as it impacts performance and financial risk. Moreover, this balance changes with the industry. Our study aims to assess the impact of capital structure (CS) on firm profitability in the tourism industry. The sample consists of 71 listed firms from the tourism sector of the MENA region. Through a quantitative approach, we use pooled and static panel regression, examining the annual financial published data of the selected firms from 2010 to 2021 sourced through the Refinitiv database. The results show that an increase (decrease) of the debt (equity) portion in the capital structure impacts both ROA and ROE negatively and significantly, even after controlling for asset tangibility, size, liquidity, inflation, COVID-19 effects, and loss-making firms in the sample. The findings suggest that tourism firms in the MENA region should avoid an aggressive capital structure policy. To our knowledge, this study is the first one to examine the impact of CS on the profitability of the tourism industry for the entire MENA region, thus being of great value to firm-level policymakers and investors in the region.*

Keywords: *MENA, Tourism Industry, Profitability, Capital Structure, COVID-19*

INTRODUCTION

Tourism in the MENA Region

The Middle East and North Africa (MENA) have a total population of 472.49 million and a combined GDP of $3.64 trillion. Led by the Gulf Cooperation Council (GCC) countries, the economy of the MENA region as a whole is heavily reliant on the oil industry, with oil rents comprising 11.9% of its total GDP. In addition to the oil industry, tourism is another important economic sector that has witnessed remarkable growth. As per the latest World Bank data, the number of arrivals in the region has almost doubled over the last couple of decades, topping 152.57 million in 2019. International tourism receipts comprise 10.6% of the total exports and contribute a massive $145.14 billion to the region's economy (The World Bank, 2022). Among the MENA countries, the importance of the tourism sector is most notable in the countries that rely less on oil but have become a vital development driver in the oil-based economies in an attempt to diversify their economies and reduce dependence on oil (Hilmi et al., 2015; World Tourism Organization, 2019). Tourism in these countries contributes to economic growth through employment, infrastructure, tax revenues, and foreign exchange (Omri et al., 2015; Tang & Abosedra, 2014).

Considering the economic importance of tourism in general and the MENA region in particular, there is a legitimate interest in the performance of the firms operating in this sector. Therefore, this study investigates the impact of CS on tourism firms' profitability in the MENA region.

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Definition of Capital Structure and Profitability

Literature defines CS as the combination of financing sources of a firm. Firms typically resort to two long-term sources to finance their investments: debt and equity. However, multiple factors influence decisions on the proportions of debt and equity in a firm's balance sheet, and there is no magical formula to determine the perfect mix of debt and equity.

Profitability is defined as the ability of a firm to generate revenues that exceed its expenses during a given period. It is the primary goal of any firm since it is used to reward the shareholders and finance future growth and expansion. The very existence of a firm depends on its ability to generate profits. It is the only source of additional capital for some firms that do not have investors or access to debt financing. According to the pecking-order theory, even for other firms, it is the preferred funding source over debt and equity. In addition, profitability is positively related to stock price valuation. Hence, being profitable helps firms attain their ultimate goal of growth in the wealth of their shareholders (Alarussi & Alhaderi, 2018).

CS Traditional Theories

The CS debate has attracted much interest and has been the subject of many studies over the years. This section presents a summary review of some of the main theories in this field.

Capital Structure Irrelevance Theory: In 1958, Modigliani and Miller asserted that in a world of perfect capital markets, with no corporate tax, agency costs, or bankruptcy risk, the value of a firm was not affected by the CS. Their theory, which is hard to prove empirically due to the unrealistic circumstances it presupposes, drew a lot of interest and controversy at the same time. Later, in 1963, they elaborated further on their theory to account for the tax-saving effect of debt. They showed that, in the absence of bankruptcy risk, the value of the firms would increase proportionally with the amount of debt in their CS (Modigliani & Miller, 1958; Modigliani & Miller, 1963).

Trade-Off Theory: In a broad sense, a trade-off in decision-making involves balancing the costs and benefits of a particular course of action. In the context of CS decisions, it entails selecting an optimal debt-equity combination that maximizes the benefits of debt related to tax and minimizes the costs of financial distress. In their corrected article on CS, Modigliani & Miller (1963) ignored the risks associated with increased debt, concluding that a firm might be ideally financed entirely by debt. However, such a scenario is not feasible in the real world due to the bankruptcy risk directly related to the level of debt. Kraus & Litzenberger (1973) were the first to formally introduce the combined effect of tax advantages of debt and bankruptcy costs into determining a firm's market value, a concept developed further by Myers (1984).

Pecking-Order Theory: This theory, initiated by Stiglitz (1973) but fully developed by Myers and Majluf (1984), ranks the various financing options available to a firm in order of preference. According to the pecking-order theory, whenever firms need cash flows to fund their investment projects, the first preference is given to their internally generated funds through retained earnings. However, firms always prefer to borrow funds instead of issuing additional stock when they must resort to external financing due to the lack of internal cash flows. It follows that the higher the profits of a firm, the lower the borrowing (Karadeniz et al., 2009; Myers, 2001).

Agency Cost Theory: This theory, put forward by Jensen and Meckling (1976), deals with the conflicting interests between managers (agents) and shareholders (principals) and their impact on financing decisions. In general, corporate managers are interested in investment projects that lower the risk of losing their jobs or increase the likelihood of growth in their compensation, which is usually tied up with business expansion and sales growth. However, in doing so, they may undertake below-par investment projects, even loss-making ones, which is only exacerbated when there are large amounts of free cash flows available (Jensen, 1986). Therefore, managers always prefer internal funding rather than external funding when deciding on project financing. In this way, they avoid being under the microscope of their creditors and capital markets, which may enforce certain conventions and metrics that limit their power. The shareholders, however, would like firms to use more debt for precisely the opposite reason so that the monitoring by creditors and capital markets and the threat of default may motivate managers to be more efficient in their use of capital.

Market Timing Theory: This is a relatively recent theory developed by Baker & Wurgler (2002). By relying on empirical data analysis, they generalized the idea that firms' CS is the product of a series of their managers' attempts to time the market. According to their theory, firms are more inclined to issue new stock in times when the firm's stock is overvalued by the market, thus increasing the equity portion in their CS. However, when the firm's stock is undervalued, debt financing is always favored over equity financing, raising the debt portion in the CS.

With this study, we aim to empirically investigate the influence of CS on firms profitability of the selected firms from the tourism industry. We employ total liabilities to total assets (LA) and total equity to total assets (EA) as independent variables to measure the CS and return on assets (ROA) and return on equity (ROE) as dependent variables that measure profitability.

This study is not the first to examine the relationship between the firm's CS and its profitability. Considerable theoretical research has focused on the topic over the years, leading to the inception of various theories such as the ones discussed above. Also, as the literature review shows, multiple empirical studies have been conducted to either support or reject those theories. Interestingly, our literature review revealed a broad spectrum of mixed and contradictory empirical findings, suggesting that the debate is still ongoing.

This study is motivated by the importance of tourism in the MENA region, a powerful economic development driver aside from the oil industry. It is also motivated by the strategic goal they have set of achieving sustainable development consistent with the environmental, social, and governance objectives. While there are a few country studies related to CS in the tourism sector of this region, to our knowledge, this is the first study examining the impact of CS on the profitability of the tourism industry for the entire MENA region. With this study, we aim to make a modest contribution to settling the ongoing debate over the optimal capital structure and help managers in the tourism industry make better capital decisions.

This paper is structured as follows: The second section reviews the literature relevant to our research and develops our hypotheses. The third section discusses our sample, variables, and research model. The results are presented and discussed in the fourth sections, followed by the conclusions in section five.

LITERATURE REVIEW

Due to a large amount of literature on CS, in this section, we limit our review to those studies that have at least examined the relationship between CS as an independent variable and the firm's performance as the dependent variable.

Margaritis and Psillaki (2007) examined whether high leverage leads to better performance. For this purpose, they studied a sample of 12,240 small and medium enterprises in New Zealand. They observed the performance behavior in response to changes in leverage levels represented by the debt-to-assets (D/A) ratio. They concluded that their results aligned with the agency cost theory, whereby highly leveraged firms tend to be more efficient. Theirs is one of the few studies in our review that found a positive impact of leverage on profitability.

Quite a few authors found a negative relationship between these two variables. For instance, Pouraghajan et al. (2012) studied all listed firms in the Tehran Stock Market for five years, 2006-2010. Their results showed a strong and significant negative impact of leverage on profitability, i.e., ROE and ROA, suggesting a need to decrease debt levels. Similar conclusions were also obtained by Seetanah et al. (2014) in a study of firms listed on the Mauritius Stock Exchange. Alarussi & Alhaderi (2018) studied the impact of a range of factors on profitability, including leverage. They used a sample of 120 listed Malaysian firms and concluded that leverage had a negative effect on profitability. Samo & Murad (2019) also found that Pakistan textile industry firms exhibited an inverse relationship between debt levels and profits, recommending that managers rely more on equity than debt financing. Zaitoun & Alqudah (2020) studied a sample of 54 manufacturing firms listed on the Amman Stock Exchange. They found a negative relationship between financial leverage and profitability, suggesting that profitable firms prefer to use their retained earnings instead of borrowing, in support of the pecking-order theory. Habibniya et al. (2022) examined the CS-profitability relationship of the telecom sector in USA for nine years. They found a negative relationship between CS and ROA in that higher debt ratios were associated with lower levels of ROA, but they concluded that CS was not significantly related to ROE. Finally, in a study on the relationship of liquidity and leverage with profitability in the hospitality industry context, Dsouza et al. (2023) concluded that leverage, represented by the debt-to-equity ratio, had a negative impact on both ROA and ROE.

Other authors found mixed results. For example, Nasimi (2016) examined a sample of 30 listed firms on the London Stock Exchange. His findings showed that debt-to-equity affects ROA negatively, but ROE and Return on Invested Capital (ROIC) positively. The same findings are supported by another study by Nguyen et al. (2019) in the real estate sector in Vietnam. Their results also pointed out a negative impact of leverage on ROA and a positive one on ROE.

Lastly, Ayaz et al. (2021) found a non-monotonic relationship between leverage and performance. Considering a sample of 528 listed firms in Malaysia for 12 years, 2005-2016, they concluded that leverage improves the firm performance up to a certain point. Still, its effect turns negative beyond that level, suggesting that firms must strive to find an optimal debt-equity combination.

Short-Term Debt vs. Long-Term Debt

Some researchers have investigated the impact of various types of debt on profitability, i.e., short-term debt as opposed to long-term debt. Abor (2005) conducted a study on all listed firms in Ghana over five years, from 1998 to 2002. He found that the impact of total debt on ROE was positive. However, when breaking down total debt into short-term and long-term debt, he found that short-term debt had a positive effect, while long-term debt had a negative effect on ROE. The author pointed out that short-term debt was the main contributor to the total debt effect since it represented 85%

of Ghanaian firms' total debt. A similar study was replicated by Gill et al. (2011) with a sample of 272 American firms in the service and manufacturing industry. Interestingly, they found that all three components of debt, i.e., short-term, long-term, and total debt, positively impacted ROE. Ahmed and Bhuyan (2020) studied 91 listed firms in Australia. Their empirical analysis indicated a negative relationship between total debt and ROA. However, when considering the effect of long-term debt only, there was a significant positive impact on profitability, implying a negative effect on the short-term debt component.

Accounting vs. Market Performance

Several studies focused on market performance, in addition to profitability measured by accounting ratios. For example, Yoon and Jang (2005) examined the impact of CS on firms' performance measured by ROE and stock price (market performance). Their study, which comprised 62 firms in the restaurant industry, found a positive relationship between leverage and performance using accounting and market measures. However, in a similar study on 167 Jordanian firms, Zeitun and Tian (2007) arrived at contradicting conclusions when they found a statistically significant negative relationship between CS and firm performance measured by ROE/ROA and Tobin's Q (market performance). Similar results were also obtained by Soumadi and Hayajneh (2012). Adding more confusion to the matter, the following studies came up with mixed conclusions. In a study of 237 Malaysian listed firms, Salim and Yadav (2012) concluded that leverage had a negative impact on performance as measured by the accounting ratios but a positive relationship to Tobin's Q. Cole et al. (2015) using a sample of industrial, healthcare, and energy firms in the US, found that CS affects ROA negatively, but found no relationship between CS and the market performance. Gharaibeh (2015), examining a sample of 17 non-financial listed firms in Bahrain, determined that D/A negatively impacts ROA but not ROE, EPS, and Dividend Yield (market performance).

Capital Structure and Performance in the Tourism Sector

Several research works focused on the tourism sector are of particular interest to this study. Yoon and Jang (2005) studied the effect of CS on the firm's performance in the restaurant industry. They found a positive relationship between these variables in this industry. In a study of 146 private hotels in Greece, Diakomihalis (2011) found the impact of leverage on profitability was positive and significant for the more leveraged five-star hotels, compared to the less leveraged hotels in the lower categories. In another similar study on 308 firms in the restaurant industry, Park and Jang (2013) investigated the relationship between the D/A ratio and profitability. Their results were consistent with those of Yoon and Jang (2005) and Diakomihalis (2011), pointing to a positive effect of leverage on a firm's performance. However, the same year, Mawanza and Mugumisi (2013) contradicted these results for the hospitality sector, however their sample was limited to just four listed companies in Zimbabwe. They found that CS negatively affected firm performance. Interestingly, as for the relationship between CS and firm market value, they found it to be positive, a conclusion opposite to that of Salim and Yadav (2012), mentioned earlier. A negative relationship between the variables was also pointed out by Magoutas et al. (2016), Shamaileh & Khanfar (2014), and Winantea (2013), who studied the lodging sector in Greece, the tourism sector in Jordan, and the lodging sector in Indonesia, respectively.

Based on the literature review, we have identified several variables that have been used as measures of firm performance and capital structure. Performance has been traditionally measured by accounting ratios such as ROA and ROE (Abor, 2005; Ahmed & Bhuyan, 2020; Demiraj et al., 2022; Dsouza & Habibniya, 2021; Dsouza & Pandey, 2017; Dsouza et al., 2022; El-Sayed Ebaid, 2009; Gill et al., 2011; Habibniya & Dsouza, 2018; Habibniya et al., 2022; Dsouza et al., 2023; Nasimi, 2016; Nguyen et al., 2019; Pouraghajan et al., 2012; Singh & Bagga, 2019; Yoon et al., 2005; Zeitun & Tian, 2007). Some studies have also added market performance dimension by including indicators such as Tobin's Q, stock price, P/E ratio, and dividend yield (Cole et al., 2015; Gharaibeh, 2015; Salim & Yadav, 2012; Soumadi & Hayajneh, 2012; Yoon & Jang, 2005; Zeitun & Tian, 2007). Capital structure, on the other hand, has been mainly measured by the debt and equity ratios, with some breaking down the total debt ratio into short-term and long-term debt ratios (Abor, 2005; Alarussi & Alhaderi, 2018; El-Sayed Ebaid, 2009; Gill et al., 2011; Habibniya et al., 2022; Karadeniz et al., 2009; Pouraghajan et al., 2012; Salim & Yadav, 2012; Singh & Bagga, 2019; Zeitun & Tian, 2007). A full explanation of all variables used in this study, along with respective literature references, is found in section 3.1.

In our study, the impact of CS (LA and EA) on the profitability (ROA and ROE) of the selected firms from the MENA tourism industry is tested. Considering CS as a relevant influence on profitability, we formulated the following hypothesis:

H1: Capital structure (LA and EA) has a significant impact on the performance (ROA and ROE) of tourism firms in the MENA region.

METHODS

Variables and Research Model

In this research paper, we have utilized unbalanced panel data from 71 firms for the period 2010-2021, making up a total of 768 firm/year observations. Then we performed OLS data regression to test the robustness of our panel results. The dependent variable is the firm's profitability (proxied by ROA and ROE), while the independent variable is CS (proxied by LA and EA). Due to the high correlation of LA with EA and ROA with ROE (see Table 3), we ran separate models for each type of regression (Panel and OLS) to test the impact of LA and EA on ROA and ROE respectively, resulting in four panel models, i.e., LA-ROA(Panel), LA-ROE(Panel), EA-ROA(Panel), EA-ROE(Panel) and four OLS models for robustness, i.e., LA-ROA(OLS), LA-ROE(OLS), EA-ROA(OLS), EA-ROE(OLS)). We calculated the VIF values for all models to test for potential multicollinearity among the variables, and no such issues were found. We ran the Housman test to decide on the use of the appropriate type of panel model, random-effects or fixed-effects, and based on the values obtained, the fixed effects were chosen in all models. Besides the main variables in the study, to measure the true relationship between them, we have included a number of control variables that are known to have an effect on profitability, i.e., asset tangibility (NCA), size (S), liquidity (LI), inflation rate (IR), and two dummy variables, COV to account for the Covid-19 health crisis effect, and loss LOSS to distinguish between loss-making firms and profit-making firms (Atayah et al., 2022). A full description of the variables and their respective formulas and referenced literature are found in Table 1. The time series data on all variables were obtained from the financial data available on the Refinitiv website. All the selected firms are listed on the stock exchange and belong to the tourism industry in the MENA region.

Table 1: Explanation of Variables

Variable Category	Symbol	Description	Formula	References
Dependent	ROA	Return on Assets	*Net Income/Total Assets*	*Ahmed & Bhuyan (2020)*
	ROE	Return on Equity	*Net Income/Total Equity*	*Samo &Murad (2019)*
Independent	LA	Debt Ratio	*Total Liabilities/Total Assets*	*Habibniya et al. (2022)*
	EA	Equity Ratio	*Total Equity/Total Assets*	*Habibniya et al. (2022)*
Control	NCA	Asset Tangibility	*Non-current Assets/Total Assets*	*Mueller et al. (2021)*
	S	Firm Size	*Ln of Total Assets*	*Mueller et al. (2021)*
	LI	Liquidity	*Current Assets/Current Liabilities*	*Pouraghajan et al. (2012)*
	IR	Inflation Rate	*(CPIt-CPIt-1)/CPIt-1*	*Atayah et al. (2022)*
	LOSS	Loss Dummy	*0 / 1 (Profit / Loss)*	*Atayah et al. (2022)*
	COV	COVID-19 Dummy	*0 / 1 (No Covid / Covid)*	*Atayah et al. (2022)*

To test our hypothesis, we have adopted the following model.

Profitability = f (CS, Control Variables)

$$\text{PROFITABILITY} = \propto it + \beta 1 CS + \beta 2\, CONTROLVARIABLES + FixedEffects + \varepsilon it \quad (1)$$

Where profitability refers to ROA or ROE of firm *i* in year *t*; CS refers to LA or EA; and control variables refer to NCA, S, LI, IR, LOSS, and COV. Country (Cty.) and year (Yr.) are the fixed effects included in the model. εit represents the error term.

Sample and Descriptive Statistics

The selected sample comprises firms listed on the stock exchange for the 2010-2021 period from the MENA tourism industry, available on the Refinitiv database. In choosing the period, we aimed to include as many of the most recent years as possible while avoiding the years before 2010 impacted by the global financial crisis. Regarding the years 2020 and 2021, which were significantly impacted by the global COVID-19 pandemic, instead of excluding them, we added a dummy variable (COV) to represent the COVID-19 effect. Also, due to the severe impact of COVID-19 on tourism, we included another dummy variable (LOSS) to distinguish between profit-making firms and loss-making firms. We gave the dummy variables values of 0 or 1, representing categories no-covid/covid and profit/loss. We pooled the firm/year data from all the listed firms in the region, excluding firm/year data that had missing data or insufficient financial information for all the selected variables. A cross-sectional and unbalanced panel was obtained after all the possible data reductions. The panel comprises 768 firm/year observations from the selected 71 firms. The outliers

in the sample were not removed from the panel; instead, the data was winsorized at the 2% (p. 298) level. The data were further processed using STATA software. Table 2 shows the descriptive statistics, skewness, and kurtosis results for the mentioned data.

Table 2: Descriptive Statistics

Variables	Observations	Mean	Standard Deviation (Std. dev.)	Min.	Max.	Pr (Skewness)	Pr (Kurtosis)
ROA	768	0.0311447	0.096281	−0.20993	0.318615	0	0
ROE	768	0.0432223	0.164483	−0.45405	0.443447	0.0001	0
LA	768	0.3141723	0.236093	0.011927	1.025965	0	0.0048
EA	768	0.6858278	0.236093	−0.02596	0.988073	0	0.0048
NCA	768	0.7050633	0.261264	0.020534	0.977938	0	0.0017
S	768	19.07273	2.388423	14.98524	23.30239	0.1975	0
LI	768	3.439871	7.414323	0.081548	44.46992	0	0
IR	768	3.497266	3.860215	−2.08	14.4	0	0

As shown in Table 2, the mean of ROA is 0.0311447 (≈ 3.1%), and that of ROE is 0.0432223 (≈ 4.3%), whereas the Std. Dev. for ROA is 0.096281, and for ROE is 0.164483. The relatively low mean of ROA and ROE indicates that the selected firms from the MENA tourism industry, though never highly profit-making, on average maintained their break-even point and even managed to achieve modest profits. Considering that the period under study includes the COVID-19 years, which had a devastating effect, especially on the tourism industry, the overall performance of the industry is encouraging. The relatively high values of Std. Dev. relative to the mean values of ROA and ROE (roughly threefold for ROA and fourfold for ROE) indicates that the performance of firms across the MENA tourism industry varies considerably, with some performing exceptionally well and others underperforming. This situation has most probably been exacerbated by the COVID-19 pandemic. The LA mean has been recorded as 0.3141723, and its Std. Dev. as 0.236093. Since LA measures firms' debt ratio (total liabilities over total assets), a ratio of less than 1 indicates that firms are not relying heavily on debt to finance their operations and investments and that the assets are more than sufficient to maintain the liabilities, which is a good sign indicating the financial stability of the industry. The low Std. Dev. for LA suggests that the firms across the sample chosen are, as a majority, financially stable. The EA mean has been recorded as 0.6858278, and its Std. Dev. as 0.236093. Since EA measures the equity ratio (total equity over total assets), an EA greater than 0.5 indicates that the firms prioritize internal funding as a source over others in their CS. This partially supports the pecking-order theory (Donaldson, 1961; Myers & Majluf, 1984). A low Std. Dev. indicates that the firms across the sample follow similar behavior. As the skewness observations for ROA, ROE, LA, and EA are all almost equal to zero, it indicates that the data used in the sample is pretty symmetrical. A low kurtosis value across ROA, ROE, LA, and EA indicates that the sample data lacks outliers.

Table 3: Correlation Among the Variables

Variables	ROA	ROE	LA	EA	NCA	SIZE	LI	IR
ROA	1							
ROE	0.6924*	1						
LA	−0.1310*	−0.0165	1					
EA	0.1310*	0.0165	−1.0000*	1				
NCA	−0.1542*	−0.2534*	−0.1629*	0.1629*	1			
S	0.2384*	0.2519*	0.3525*	−0.3525*	−0.3896*	1		
LI	−0.0221	−0.0083	−0.3227*	0.3227*	−0.3944*	0.0417	1	
IR	−0.0165	−0.0103	0.1780*	−0.1780*	0.0302	0.1300*	−0.0176	1

*Statistically significant at 5 percent level.

Table 3 presents the paired correlation among the variables in our study. As can be observed from the table, LA is negatively correlated to ROA and ROE at a coefficient of −0.1310 and −0.0165, respectively. This indicates that LA moves in an opposite direction to ROA and ROE. However, the correlation of EA with ROA and ROE is positive at a coefficient of 0.1310 and 0.0165, respectively, indicating that they move in the same direction. Notably, the correlation

of LA and EA with ROA is statistically significant at 5%. In addition, we notice that LA is perfectly and inversely correlated with EA, which is to be expected based on how the two variables are calculated (see Table 1). Based on such correlation values, we expect the regression results to be the same for La and EA, only with opposite signs. Even though the correlation matrix provides a general picture of the paired association among the variables, regression analysis results are needed to determine the actual impact of our independent variables on ROA and ROE.

RESULTS AND DISCUSSION

In this section, we present the results of eight regression models, four panel models, and four OLS models. As we will see, even though producing different coefficients, overall, the Panel and OLS results agree on the type of relationship and significance. Also, as expected (due to a correlation of -1), the results of the LA and EA models are identical, with the only exception being the sign which is opposite.

Results of CS (LA and EA) Relationship with ROA

We have grouped the results based on the dependent variable. In Table 4, we present first the results of the first four models where ROA is the dependent variable, i.e., LA – ROA (Panel), EA – ROA (Panel), LA – ROA (OLS), and EA – ROA (OLS).

Table 4: Impact of LA and EA on ROA (Panel and OLS)

	Panel Regression - Fixed Effects		OLS Regression	
Variables	**LA - ROA**	**EA - ROA**	**LA - ROA**	**EA - ROA**
LA	-.079***		-.091***	.091***
	(0.02)		(0.014)	-0.014
EA		.079***		.091***
		(0.02)		(0.014)
NCA	-.089***	-.089***	-.047***	-.047***
	(0.021)	(0.021)	(0.013)	(0.013)
S	.019***	.019***	.008***	.008***
	(0.006)	(0.006)	(0.001)	(0.001)
LI	-.001**	-.001**	-.002***	-.002***
	(0.001)	(0.001)	(0)	(0)
IR	0.001	0.001	0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
_cons	-.216*	-.295**	-0.013	-.104***
	(0.121)	(0.12)	(0.03)	(0.034)
Observations	768	768	768	768
R-squared	0.332	0.332	0.367	0.367
Adj. R^2	0.257	0.257	0.361	0.361
Hausman test (Prob > chi2)	0.015	0.015		
Standard errors are in parentheses				
***p < .01, **p < .05, *p < .1				

The results of the panel data model on the relationship of the CS (LA and EA) with the first independent variable (ROA) are presented in the first two columns of Table 4. Only the fixed effects results are presented and interpreted based on the Hausman test values obtained (0.015). We tested the data for multicollinearity, and the VIF values revealed no such issues in our models. The fixed panel results reveal a negative (positive) and significant (at 1%) relationship between LA (EA) and ROA with the COV and LOSS dummy included in the model. The OLS regression output on the same relationships carried out as a robustness test is presented in the last two columns of Table 4. The OLS results confirmed the panel regression results. As can be noticed from the results, the coefficient between LA (EA) and ROA with COV and LOSS dummy in the OLS model is negative (positive) and significant (at 1%), similar to the panel results. Hence, we conclude that LA (EA) has a statistically significant negative (positive) impact on ROA after controlling for

asset tangibility, firm size, liquidity, inflation, COVID-19 crisis effects, and the existence of loss-making firms in the sample. The consistent results from both methods support our central hypothesis regarding ROA: There is a significant relationship between CS and profitability as measured by ROA, and the more leveraged firms in the sample are less profitable in terms of ROA.

Results of CS (LA and EA) Relationship with ROE

Next, we present in Table 5 the results of the last four models where ROE is the dependent variable, i.e., LA – ROE (Panel), EA – ROE (Panel), LA – ROE (OLS), and EA – ROE (OLS).

Table 5: Impact of LA and EA on ROE (Panel and OLS)

	Panel Regression - Fixed Effects		OLS Regression	
Variables	**ROE**	**ROE**	**ROE**	**ROE**
LA	-.128***		-.047**	
	(0.036)		(0.022)	
EA		.128***		.047**
		(0.036)		(0.022)
NCA	-.091**	-.091**	-.135***	-.135***
	(0.038)	(0.038)	(0.021)	(0.021)
S	-.035***	-.035***	.006***	.006***
	(0.012)	(0.012)	(0.002)	(0.002)
LI	-0.001	-0.001	-.002**	-.002**
	(0.001)	(0.001)	(0.001)	(0.001)
IR	-0.003	-0.003	-.002*	-.002*
	(0.002)	(0.002)	(0.001)	(0.001)
_cons	.877***	.749***	.11**	0.063
	(0.219)	(0.218)	(0.047)	(0.053)
Observations	768	768	768	768
R-squared	0.37	0.37	0.465	0.465
Adj. R^2	0.3	0.3	0.46	0.46
Hausman test (Prob > chi2)	0.0001	0.0001		
Standard errors are in parentheses.				
***p < .01, **p < .05, *p < .1				

The first two columns of Table 5 present the results of the panel data model on the relationship of CS (LA and EA) with the second dependent variable (ROE). The VIF values for these models also did not reveal any multicollinearity issues. Again, only the fixed effects results are presented and interpreted based on the Hausman test values obtained (0.0001). The fixed panel results, similar to the results obtained earlier from the models concerning ROA, reveal a negative (positive) significant (at 1%) relationship between LA (EA) and ROE with the COV and LOSS dummy included. The OLS results presented in the last two columns of Table 5 have confirmed the panel regression results, proving that those results are robust. As in the case of the panel model, the coefficient between LA (EA) and ROE with COV and LOSS dummy in the OLS model is negative (positive), significant at 5%. Hence, we conclude that LA (EA) has a statistically significant negative (positive) impact on ROE after controlling for asset tangibility, firm size, liquidity, inflation, COVID-19 crisis effects, and loss-making firms. These results, which are consistent across both models, support our central hypothesis regarding ROE: There is a significant relationship between CS and profitability as measured by ROE, and the more leveraged firms in the sample are less profitable in terms of ROE (see Table 13).

Implications

In summary, the results of all eight models confirm the study's overall hypothesis that CS (La and EA) has a significant impact on the profitability (ROA and ROE) of tourism firms in the MENA region. Besides revealing a statistically significant relationship, the results suggest that more leveraged firms (higher debt, lower equity) are less profitable, implying that contrary to the capital structure irrelevance theory of Modigliani and Miller, a firm's capital

structure is relevant due to several factors such as tax effect and bankruptcy risk. In line with the trade-off theory, carefully balancing debt and equity is essential as increasing debt beyond a certain level impairs a firm's profitability and, ultimately, its value. The results also do not back the agency theory, according to which more debt leads to better efficiency and managerial decisions due to increased pressure and scrutiny. From a different angle, we may also infer that more profitable firms use less debt, which may be viewed as a preference toward internally generated funds rather than external capital, consistent with the pecking order theory. Due to the leverage effect of debt, it is to be expected that ROE benefits from higher debt levels more than ROA. However, the results suggest that not only does ROE decline like ROA when debt increases, but this negative impact is even more pronounced than in the case of ROA. This would suggest that firms in the tourism industry in the MENA region either engage in poorly selected investment projects with return rates lower than the interest rates or borrow at excessively high rates, thus leading to a deterioration of the shareholders' position.

Our results on the relationship of CS with ROA are consistent with prior studies from Habibniya et al. (2022), Singh and Bagga (2019), and Vătavu (2015), while the findings on the relationship of CS with ROE are consistent with the results of Vătavu (2015).

CONCLUSION

This paper examines the relationship between CS and firm profitability. Various theories have been developed in the past on this relationship, but to date, there is no definitive answer. We decided to test this relationship using a sample comprising 71 listed companies in the tourism sector of the MENA region due to the increased importance that this industry has gained lately in the region and the strategic goal of achieving sustainable development.

The conclusion from the regression analysis revealed that the LA (EA) ratio has a significant and negative (positive) impact on firm performance, as measured by ROA and ROE. Our main findings suggest that if managers are not mindful of the delicate balance of debt and equity, they risk worsening the performance of the firm in general and the position of their shareholders in particular. An inverse relationship between debt levels and profitability indicates that, in line with the pecking-order theory, profitable firms in the MENA tourism sector prioritize internally generated funds over external ones in their CS. Conversely, the less profitable firms that lack internal cash flows are forced to rely on debt rather than equity. If the debt is used wisely to finance well-chosen projects, it may be advantageous to the firm due to its tax-saving effect and even more so to the shareholders due to the leverage effect. However, it appears that MENA region tourism firms, in general, are failing to benefit from these properties of debt either by engaging in poor investment projects that do not justify the cost of borrowings or by taking on debt at profusely high rates, or both. This conclusion implies that taking on more debt does not positively affect management's performance and efficiency, contrary to the agency theory.

Since MENA is a booming attraction for the tourism industry, this study can be helpful to potential investors. It will also help firms determine the optimal CS mix with the aim of reducing costs and maximizing firm value. Future research may be conducted on the contributing factors and causes of the derived results. Further comparative studies in MENA and different locations, exploring different methodologies, can be encouraged.

This study is limited to the listed tourism firms in the MENA region. As such, the sample size is relatively small. Taking a global sample and doing a comparative study with MENA would provide stronger implications for our current study. The explanatory variables added in the model would also be a limitation to the study, as the study is only restricted to the LA and EA. Additional explanatory variables could provide variations in the results.

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