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The Financial Performance of Greek Hotels Before and During the Crisis

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Abstract: This paper aims at determining the critical factors affecting the profitability of the tourism sector in Greece, by using data for an extensive panel of Greek tourism enterprises for 2005-2011 period. As the Greek economy is still in a deep and prolonged recession, exploring profitability issues in specific sectors could help identify those sectors which could act as drivers of growth for the Greek economy out of the recession. The tourism sector, which accounts for almost 25% of GDP in Greece (directly and indirectly), is an obvious candidate for contributing to this end. The econometric results suggest that the recent crisis has resulted to a differentiation of the determinants of profitability of Greek tourism firms.

Keywords: Tourism Policy, Profitability, Panel Data

1. Introduction

The aim of this study is to identify the determinants of profitability of the tourism sector in Greece placing emphasis on the effect of the crisis. This could shed light on how, using a bottom-up approach (i.e. starting from the firm level) in specific sectors, a solution could be proposed for a way out of the deadlock the Greek economy is in since the outbreak of the debt crisis in 2010.

The empirical analysis is based on a panel of 4433 Greek companies operating in tourism sector for the 2005-2011 period. The structure of the paper is as follows: in Section 2, a selective review of the literature is presented, followed by the description of the data and the methodology in Section 3. The empirical results are presented and discussed in Section 4, while Section 5 summarizes research results and conclusions while outlining future research directions.

2. Literature Review

The determinants of profitability at the firm level, and especially firm size, age, capitalization, debt leverage, investment, managerial efficiency and cost efficiency have been in the spotlight of theoretical and empirical research in the economics and management disciplines.

Majumdar tested the effects of variables such as firm size, age and financial leverage on firm profitability and found that all these variables affect profitability positively [8]. Kester found a negative relationship between financial leverage and profitability [6]. Geroski et al. also suggest that financial capital is positively related to firm profitability [5]. Tze-Wei Fu et al., indicate that capital growth, and debt financing play important role in the profitability of firms [14]. More recently, Sandvik et al. tested the relationship between market share and Norwegian hotel profitability, while Aissa and Goaied; and Marco-Lajara et al. highlighted the effect of managerial efficiency on the performance of tourism firms [13, 2, 9].

Very few empirical studies have been published on this topic during the past decade regarding Greece. Among the first empirical studies on this area were those by Voulgaris et al., Papadogonas; and Agiomirgianakis et al., wherein firm level panel data covering the period 1995-99 were used [16, 15, 11, 1]. All these papers focused on the case of the Greek manufacturing sector.

At a later stage, Asimakoloulos et al. examined the determinants of profitability of non-financial sector listed Greek firms, for the 1995-2003 period using panel data estimation techniques [3]. The main conclusion of the

aforementioned paper was that firm profitability was positively affected by size, sales growth and investment while leverage and liquidity had a negative impact. Eriotis and Vasiliou, using panel data on a sample of 129 companies listed on the ASE during 1997-2001, found that debt negatively affects a firm's growth and profitability [4]. Shortly after, Notta et al. studied the competitiveness in the Food and Beverage industry in Greece, using profitability and growth as the main proxies of competitiveness [10]. The study covered the 2003-2007 period and identified market share, age, leverage and firm growth as the main determinants of profitability.

Papadogonas et al. analyzed the relationship of profitability with market power and cost efficiency under conditions of economic recession [12]. The authors argued that both variables are significant determinants of profitability while the cost efficiency variable is far more important compared to market share in terms of explaining profits - especially in the post-crisis period.

The aim of the paper at hand is to contribute to the relevant literature in two directions: a) investigate the overall impact of the economic crisis on the profitability of tourism enterprises by discerning two distinct periods in the empirical analysis (prior and following the recent economic crisis), b) estimate the effect of variables such as capitalization and efficiency.

3. Data and Methodology

For the purpose of this study, we examined an extensive dataset of 4433 Greek companies for the 2005-2011 period. The data were extracted from the financial database of ICAP Hellas S.A. The sample included only firms from the tourism sector which is the largest service sector in Greece.

For empirical purposes the sample was divided into two subsamples: one comprising the years 2005-2008 (the period prior to the crisis) and the other the years 2009-2011 (the period following the outbreak of the crisis).

Based on the relevant theoretical and empirical literature, we opted for the use of the following explanatory variables regarding the financial performance of tourism enterprises, using Return on Assets (ROA) as the relevant proxy [7]:

- Market Share measured as Sales of firm i over Total Sales of the relevant 4-digit industry.
- Age measured as year t minus year of establishment of the firm.
- Leverage measured as Total Debt / Total Liabilities. This variable shows the level of firm indebtedness, both in the short and long term.
- Capitalization measured as Fixed Assets over Total Assets which shows the capital intensity of the firm.
- Investment measured as the change in Net Fixed Assets from year t-1 to year t. This variable could be considered as a proxy for the tendency of firms to use new technologies (innovation).
- Managerial Efficiency measured as Sales over Total Assets.
- Cost Efficiency: Measured as the Cost of products sold over Total Assets.
- Crisis Dummy: a dummy variable taking the value of 1 for the post-crisis period (2009-2011) and 0 for the pre-crisis period (2005-2008). This variable is included in order to capture the overall effect of the recent economic crisis on the profitability of firms.

4. Empirical Results

Based on the above discussion we opted to estimate the following model:

$ROA = a_0 + a_1 MarketShare + a_2 Age + a_3 Leverage + a_4 Capitalization + a_5 Investment + a_6 ManagerialEfficiency + a_7 CostEfficiency + a_8 CrisisDummy + \varepsilon$

We estimated the above equation using panel data for a) the total period (2005-2011), b) the pre-crisis period (2005-2008) and c) the post crisis period 2009-2011[1]. Table 1 summarizes the variables used followed by the expected direction of their effect on profitability.

Table 1. *Variables used and expected signs.*

Variable	Meaning	Expected sign (Dependent Variable: Return on Assets)
Market Share	Market share of the firm in the relevant 4-digit industry	(+)
Age	Years of operation of the firm since establishment	(+)
Leverage	The ratio of Total Debt / Total Liabilities	(-)
Capitalization	The ratio of Fixed Assets / Total Assets	(+)
Investment	Change in Net Fixed Assets from year t-1 to year t (proxy for innovation)	(+)
Managerial Efficiency	Sales over Total Assets	(+)
Cost Efficiency	Cost of products sold over Total Assets	(-)
Crisis Dummy	Crisis dummy taking the value of 0 for the pre-crisis period (years 2005-2008) and 1 for the period after the crisis (2009-2011)	Unspecified sign

The empirical analysis was performed using the Panel EGLS method with diagonal correction of standard errors for heteroscedasticity and autocorrelation (according to the White methodology). Specifications with both fixed and random effects were also tried but their performance was relatively inferior based on the usual statistical / econometric criteria. Moreover, there is no indication that the data structure is characterized by period specific heteroskedasticity, contemporaneous covariances, and between-period covariances.

1. Obviously, the dummy was used only in the case of the whole period.

The empirical results are reported in Table 2 below:

Table 2. *Determinants of ROA.*

Variables	Time Period 2005 - 2011	Time Period 2005 - 2008	Time Period 2009 - 2011
	(a)	(b)	(c)
Market Share	7.152***	7.521***	8.116***
	(14.96)	(19.18)	(24.16)
Age	0.007***	0.008***	0.004
	(3.87)	(3.45)	(1.23)
Leverage	-0.076***	-0.068***	-0.088***
	(28.03)	(29.33)	(61.71)
Capitalization	0.005***	0.009***	0.003***
	(4.45)	(16.79)	(4.22)
Investment	1.6×10^{-6}	1.8×10^{-6}	5×10^{-6}***
	(0.10)	(0.08)	(5.72)
Managerial Efficiency	0.035***	0.025***	0.029***
	(12.07)	(17.02)	(12.45)
Cost Efficiency	-0.003***	-0.002***	-0.004***
	(5.92)	(4.03)	(8.02)
Crisis Dummy	-0.004***	-	-
	(4.17)	-	-
Adj. R-squared	0.738	0.588	0.574

Notes: * Significant at the 10% level (two-tailed test), ** Significant at the 5% level (two-tailed test), *** Significant at the 1% level (two-tailed test).

The above results are in line with findings from previous studies mentioned above [16, 1, 11]. The estimated coefficients have the expected signs and the explanatory power of the model is high. More specifically:

Market share is a statistically significant determinant of profitability, in both periods.

Age is positively correlated with profitability only for the pre-crisis period while it is not statistically significant for the post-crisis period. This indicates that experience and reputation was definitely an advantage before the crisis, while other factors may be more important during and after the crisis.

Leverage is statistically significant and, as expected, negatively affects profitability since higher debt requires more resources from the firm for interest expenses.

Efficiency statistically significant and positively affects profitability for both time periods

Capitalization is also found statistically significant for both time periods. High fixed assets are found to affect positively profitability by supporting higher sales and, consequently, profits.

The increase in *Net Fixed Assets*, used as a proxy for use of new technologies, is positively and significantly correlated to ROA only for the post-crisis period, probably indicating that firms were forced to use capital budgeting criteria in their investments in the post crisis period. Furthermore, the use of new technologies seems to be giving a differential advantage to those firms.

The *economic crisis* has affected the profitability of Greek firms in a negative and statistically significant way.

Summarizing the findings of the empirical research on the determinants of profitability one main result is that the economic crisis has adversely affected the profit performance of the Greek tourism enterprises. For the post-crisis period a shift in the relationship between profitability and age ("experience") seems to be appearing, since the latter does not provide the advantages it used to during the pre-crisis period, when old firms were able to reap more profits.

On the other hand, new investments in Fixed Assets, indicating the use of new technologies, affect the profitability during the crisis period, as it seems that resorting to innovation is more or less imposed on firms as a rescue remedy because of the adverse macroeconomic environment. At the same time, capital intensity significantly contributes to profitability while the finding of our research identify the importance of Efficiency in both managerial and cost terms irrespectively of the time period.

Summing up, the empirical results of this paper are in line with previous studies which they complement with finding about the crisis, possibly indicating that a structural break in what determines profitability is appearing because of the crisis.

5. Conclusions

This paper aims mainly at addressing the question of whether and how the recent crisis has resulted to a differentiation of the determinants of profitability of Greek tourism firms. Summing up our results, increased market share, decreasing leverage, a more efficient managerial performance, capital investment based on the principles of capital budgeting and innovation are crucial factors for financial performance during a period of economic crisis. Also, significant differences regarding the determinants of profitability between the two sub-periods under examination were detected, mainly featuring the age and investment variables. As far as policy recommendations are concerned, significant conclusions could be drawn from our findings on how to support the tourism sector in order to allow it to play its expected role[2] as a growth driver for the Greek economy. For example, it is straightforward to see how the negative correlation of profitability with indebtedness translates into an urgent need of a more prudent use of external financing while relying more on "traditional" forms of financing such as past profits. We should also place emphasis on Managerial Efficiency which proved to be an important determinant of profitability regardless of the effect of the crisis. The recent economic crisis has negatively affected profitability, as expected, so in order to overcome this negative impact the management of tourism enterprises should place more emphasis on investment in Fixed Assets through the application of new technologies in an attempt to develop an additional comparative advantage. Lines for future research include the use of more recent data for tourism enterprises when they become available along with additional variables

2. Based on its significant contribution to GDP and the resilience of the sector to the crisis compared to other sectors.

such as marketing expenditure in order to corroborate and complement the findings of this paper.

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