

## Determinants of Profitability in the Greek Tourism Sector Revisited: The Impact of the Economic Crisis

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### Abstract

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*This paper examines the impact of the recent economic crisis on the determinants of profitability in the Greek tourism sector. Our findings suggest that the established determinants of profitability still remain at play during the crisis which, nevertheless, appears to have severely hit the tourism sector (one of the main industries in Greece). As the quest for growth drivers for the Greek economy is still valid, this fact should be taken into account both at the microeconomic level and at the macroeconomic level, i.e., for a policy maker who could derive significant conclusions on how to support or stimulate investment activity in the sector. More specifically, our results suggest that, apart from the effect of already established determinants of profitability, the current economic crisis should, on one hand, induce entrepreneurs to adopt appropriate risk aversion strategies and on the other hand, prompt the Greek state to follow a more active policy in supporting the Tourism sector by the use of subsidies and taxes.*

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**Key Words:** tourism, economic crisis, profitability, panel data

### 1. Introduction

The aim of this paper is to re-examine and re-assess the relative importance of factors determining the profitability in the tourism sector in Greece in the light of the recent economic crisis. The Greek economy remains in a deep recession for the sixth consecutive year and, as a result, developments in one of the most important sectors of the economy (with a share in total economic activity estimated at 15% - 20% of GDP) are very important: on one hand, we can check whether (and how) the decision-making processes of firms have changed in this new environment; on the other, policy making conclusions could be drawn on how this sector could develop further thus constituting a growth driver for the Greek economy.

The structure of the paper is as follows: in section 2, a selective review of the literature is presented with specific references to relevant theories regarding the determinants of firm profitability. A description of the data and the methodology used follows (section 3) with empirical results presented in section 4, while section 5 concludes.

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## ***2. Selective Literature Review and the Choice of Variables for the Model***

The empirical model of this paper develops further the paper of Agiomirgianakis et al. (2012), taking into account the latest economic developments and their impact on the performance of the tourism sector.

As the aforementioned paper, this one also heavily draws from the resource-based view of the firm. According to this approach (see for example Jovanovic, 1982 and Wernerfelt, 1984), specific firm-level resources and capabilities are the fundamental determinants of company performance. Firms follow heterogeneous historical development paths and, as a result, they generate different skills and competences, which are expected to affect their performance more than the characteristics of the environment in which they operate.

This approach stresses that success is not a result of a simple investigation of the external environment for market needs and opportunities, but mainly results from the creation and development of certain advantages of the enterprise. Consequently, success is connected to specific resources that are unique for the enterprise and difficult to be imitated by other enterprises. Such measurable characteristics include financial resources (own funds, borrowed funds), natural resources (size of the enterprise, capitalization) and intangible resources (human capital and innovation, which are approximated by the educational level of the personnel, and commercial resources such as trademarks, reputation etc. which are approximated by advertising expenses and export activities).

This approach has already been applied both for the Greek economy and internationally; most notably see Voulgaris et al. 2005, Agiomirgianakis et al. 2006, Heshmati 2001 and Fu et al. 2002. More recent contributions to the literature, include Papadogonas (2007), Vlachvei et al. (2010) and Magoutas et al. (2011) adding some new insights on the determinants of profitability.

Regarding the direction of the impact of specific determinants of profitability, theories are ambiguous about the how the size of firms actually affects profitability. According to many empirical studies at the international level, the average cost of small-sized firms exceeds the corresponding cost of large sized firms. Large firms may take advantage of economies of scale in their activities and this may well result in lower profitability of smaller firms (Barbosa and Louri, 2005). On the other hand, according to the Shumpeterian theory of creative destruction, small firms (especially in new technology fields) are usually the new entrants to the markets, gradually growing and acquiring market share and profits from the incumbent larger firms (Papadogonas, 2007). Therefore, although most researchers coincide that firm size impacts on firms performance, no clear consensus exists about the direction of this impact; however, based on the specific characteristics of the tourism industry where economies of scale appear to be present (among others, Dwyer et al. 2010), we are expecting a positive impact.

As far as age is concerned, according to Stinchcombe (1965), older firms have more experience and greater network of relationships and can therefore obtain superior performance. On the other hand, it has also been argued that older firms have a more “bureaucratic” organizational structure and, as a result, they become unable to adapt to rapid changes in market conditions. Hence, the effect of age on profitability should be regarded a priori as indeterminate (see also Papadogonas, 2007). However, taking into account the effect of “reputation” and “established brand names”, both present in the tourism industry, we would tend to expect a positive relation between the age of firms and profitability.

High levels of debt are expected to affect performance negatively, since they require high interest payments, thus increasing company risk and (*ceteris paribus*) leading to inferior performance (Kester, 1986). However there are cases where the firm needs financial support for new investment which would tend to improve performance.

According to the value-maximization theory, an optimal leverage level exists for every firm, which is determined by the trade-offs between the benefits of borrowing and the associated risks (as perceived by financial institutions, often in a rapidly changing environment of high uncertainty and, possibly, reduced information).

Higher inventory stocks create working capital needs causing higher interest costs and, thus, resulting in a deterioration in performance (Majundar, 1997). On the other hand, a high inventory ratio allows firms to respond to quick changes of demand.

Hence, the effect of inventory on profitability should be regarded as uncertain, especially in the tourism sector where demand is highly cyclical and firms are accustomed to highly variable “capacity utilization” ratios.

The basic innovation of the paper, however, is the emphasis on how the recent economic crisis affected the performance of the specific sector in Greece. In this paper we follow closely Georgopouloset. al. (2012a, b) and we alternatively try specific variables which can be used as proxies for the crisis; namely, the unemployment rate (representing the real sector of the economy), the interest rate spreads (representing the financial sector of the economy), the volume of retail sales (as a conjunctural indicator) and the economic sentiment indicator (summarizing expectations and the overall climate in the economy)<sup>2</sup>.

### 3. The Model and Methodology Used

Based on the analysis of the previous section and the findings of the relevant literature<sup>3</sup>, the following variables were used as potential determinants of firm profitability (for which ROI, net profits before tax divided by sales, was used a proxy):

- Age (year t minus establishment year, in logarithmic form)
- Firm Size (natural logarithm of sales).
- Leverage (Debt divided by total liabilities)
- Inventories over total assets ratio
- A proxy for the economic crisis (alternatively, one of the four variables mentioned in the previous section)

Therefore, the empirical model we estimated can be summarized as follows:

**ROI = f (Size, Age, Leverage, Inventory, proxy for the crisis)**

The financial data used in our empirical estimates were obtained from the balance sheets and income statements provided by the *ICAP Hellas* database. The final dataset includes 134 hotels for a time span covering the 2006 - 2010 period (a total of 670 observations). The source for data for the unemployment rate was EL.STAT. (Labour Force Survey), while for the interest rate spreads the ECB database was used. The Bank of Greece was the source for the volume of retail sales and the economic sentiment indicator.

Regarding the econometric methodology, we opted for the Panel EGLS method with cross section weights and diagonal correction of standard errors for heteroscedasticity and autocorrelation (using the methodology of White, 1980). Specifications with both fixed and random effects were tried, but their performance was relatively inferior based on the usual statistical / econometric criteria.

<sup>2</sup>Georgopouloset. al. (2012a, b) includes a detailed analysis of the validity of each proxy.

<sup>3</sup>It should be noted that our choice of variables was restricted by data availability, especially for the tourism sector – see also below our directions for future research

Also, apart from allowing for a different residual variance for each cross section (captured by the cross-section weights), there is no indication that the data structure is characterized by period specific heteroskedasticity, contemporaneous covariances, and between-period covariances (given, in any case, the relatively small time dimension).

#### 4. Empirical Results

Table 1 summarizes the regression results for our preferred specification<sup>4</sup> for the model described in the previous section.

**Table 1: Determinants of profitability**

**Dependent Variable: ROI**

Method: Panel EGLS (Cross-section weights)

Sample: 2006-2010

Periods included: 5

Cross-section included: 134

	<b>Coefficient</b>	<b>t-Statistic</b>
<b>C</b>	0.120151	43.58233
<b>SALES</b>	4.13E-09	21.21720
<b>AGE</b>	0.001213	6.857439
<b>LEVERAGE</b>	-0.055884	-5.664684
<b>INVENTORY</b>	0.067982	0.328512
<b>INTEREST RATE SPREADS</b>	-0.011814	-24.12423
<b>Adj. R<sup>2</sup></b>	<b>0.7860</b>	

The above results are in line with previous studies (Voulgaris et al. 2000, Agiomirgianakis et al. 2006 and 2012, Papadogonas 2007, Kester 1986, Fu et al. 2002). The estimated coefficients have the expected signs and the explanatory power of the model is high, as indicated by the adjusted R<sup>2</sup> coefficient and the fact that all but one variable are statistically significant at the 1% significance level<sup>5</sup>. More specifically:

- *The size of enterprises.* Larger firms are more profitable than smaller ones. This could be consistent with the impact of scale economies ensuring a lower average cost. According to standard theory on this issue, this result could be accounted for (among others) by the fact that larger enterprises can negotiate better prices / terms for their production inputs.
- *The age of enterprises.* Age is found to be a significant determinant of profitability with a positive sign. According to this result, it seems that older firms are more profitable than younger ones, reflecting the impact of accumulated “learning by doing” or the “incumbent” effect.
- *The Leverage variable.* Leverage is negatively related to profitability. The large interest rates (and, therefore, costs) due to the increased company risk associated with high debt levels probably result to lower profits. Furthermore, when a large part of earnings is ear-marked to cover interest payments, less funds are available for reinvestment, thus reducing the growth opportunities of the firm.

<sup>4</sup>It should be noted that the three other variables mentioned in section 2 were also tried as proxies for the economic crisis. In all cases, they were statistically significant at the 1% significance level with the expected sign. We have not included these tables here in order to reduce the size of the paper, however, the results of these alternative estimations are available upon request from the authors.

<sup>5</sup>As explained in the literature review section, the specific variable which turns out to be statistically insignificant comes as no surprise for the specific sector.

- *The Inventories variable.* As often is the case in the literature, inventories do not significantly affect profits in the tourism sector.
- *The economic crisis,* proxied by interest rate spreads as expected, has had a negative impact on the performance (profitability) of Greek tourism enterprises.

At the microeconomic level, our findings suggest that a firm's decision to enter and successfully operate in the tourism sector should consider the size of the investment required (with economies of scale possibly coming into play at relatively large size of enterprises), the credibility or "brand name" effect (as older firms perform better than smaller ones) and their accessibility to banking funding (at reasonable cost, guaranteed for the medium to long-term). However, the statistical significance of the economic crisis variable suggests that entrepreneurs, when contemplating a new investment project / restructuring / expansion, should also take into account the "cyclical" nature of profitability in the sector; in this case, a "smoothed" profit of series should be included in the cost-benefit analysis. This may lead entrepreneurs to adopt risk aversion policies by following, certain business practices and techniques of hedging against recessions such as opting for longer-term contracts with agencies.

By the same token, policy makers should take these factors into account in formulating their policy packages for the support of the tourism sector (including investment laws, often used in the case of Greece). Especially, under the present circumstances, Greek state could support firms operating in the tourism sector either in the form of direct subsidies or in the form of reduced VAT rates so that the sector would be able to overcome the impact of the recession, thus remaining a growth driver for the Greek economy.

## **5. Summary and conclusions**

In this study we attempted to re-assess the relative importance of factors determining the profitability in the tourism sector in Greece. Using a panel data set for 134 Greek hotels for the 2006-2010 period, we estimated a regression of ROI on a selection of variables often used in the relevant literature, placing special emphasis on the impact of the economic crisis. The overall fit of the model was very satisfactory, with independent variables explaining a large part of the variability of the dependent variable. Our findings suggest that the age of a firm (credibility effect), a firm's size and low-cost access to bank financing, are, indeed, factors that may influence positively and substantially the profitability of a firm operating in the tourism sector. Also, the economic crisis appears to have had a substantial negative impact on the performance of firms in the sector. Clearly, the decision making process at the firm level as well as measures of policy making bodies aiming to support / stimulate investment activity in the tourism sector, have to take account of these influencing factors. In particular our findings suggest that entrepreneurs should, among others, adopt appropriate risk aversion policies by following, certain business practices and techniques of hedging against recessions such as opting for longer-term contracts with agencies. In addition to this, the Greek state could support firms operating in the tourism sector either in the form of direct subsidies or in the form of reduced VAT rates, so, that the sector would be able to overcome the impact of the recession, thus remaining a growth driver for the Greek economy.

As already stated above, our choice of variables was restricted by data availability. Directions for future research on the tourism sector in Greece should include an expanded sample in the time dimension (to incorporate the latest effects of the crisis which is still evolving), but also additional variables and different combinations of them, most prominently featuring marketing expenditure and a proxy for innovative activity<sup>6</sup>.

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<sup>6</sup>Innovation for the tourism sector mainly pertains to a wider spectrum of products which could aim at differentiated target groups of clients. Unfortunately, data for this kind of activity can only be obtained using surveys and questionnaires.

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