
Determinants of profitability in the Greek tourism sector – assessing the effect of the crisis

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Abstract: This paper aims at revisiting the determining of profitability empirical literature using an extensive sample of Greek tourism enterprises for the 2005–2014 period. Specific emphasis is placed on the effect of the recent economic crisis and how it has affected the aforementioned determinants. The results of the paper broadly corroborate previous findings; however, one of the main results regarding the crisis is that capitalisation seems to be affecting profitability in a negative way in the post-crisis period. Also, additional conclusions can be drawn from our results regarding economic policy: it is indeed the case that an important sector such as tourism could push growth through multiplier effects, but securing adequate financing at a lower cost is probably the key to this development.

Keywords: tourism; determinants of profitability; panel data; Greece; economic crisis.

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1 Introduction

The main aim of this paper is to examine whether the recent economic crisis has in any way affected the direction and/or the degree specific factors affect the profitability of tourism enterprises in Greece. Along these lines, our results indicate that capitalisation is affecting profitability in a negative way after the outbreak of the crisis (compared to a positive contribution in the pre-crisis period). A secondary aim is to explore whether a more or less microeconomic approach could be adopted regarding the economic policy mix aiming at the recovery of the Greek economy: could it be the case that, apart from macroeconomic policies, the support of specific sectors could help rekindle growth in Greece? This is a very important question, as the continued deep recession casts a shadow on the prospects of the Greek economy through the fact that it undermines the fiscal consolidation process.

The empirical analysis is based on a panel of 4,433 Greek companies operating in tourism sector for the 2005–2014 period for which data are currently available. 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 summarises research results and conclusions while outlining future research directions.

2 Selective literature review

The determinants of profitability at the firm level, and especially firm size, age, capitalisation, 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 (1997) 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. Kester (1986) found a negative relationship between financial leverage and profitability. Geroski et al. (1997) also suggest that financial capital is positively related to firm profitability. Fu et al. (2002) indicate that capital growth, and debt financing play important role in the profitability of firms. More recently, Sandvik et al. (2014) tested the relationship between market share and Norwegian hotel profitability, while Aissa and Goaid (2016) and Marco-Lajara et al. (2016) highlighted the effect of managerial efficiency on the performance of tourism firms.

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. (2000, 2003), Papadogonas (2005) and Agiomirgianakis et al. (2006), wherein firm level panel data covering the period 1995-99 were used. All these papers focused on the case of the Greek manufacturing sector.

At a later stage, Asimakopoulous et al. (2009) examined the determinants of profitability of non-financial sector listed Greek firms, for the 1995–2003 period using panel data estimation techniques. The main conclusion of the aforementioned paper was that firm profitability has positively affected by size, sales growth and investment while leverage and liquidity had a negative impact. Eriotis et al. (2007), 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. Shortly after, Notta et al. (2010) studied the competitiveness in the food and beverage industry in Greece, using profitability and growth as the main proxies of competitiveness. The study covered the 2003–2007 period and identified market share, age, leverage and firm growth as the main determinants of profitability. Another strand of the literature focuses on the cost structure and, in general, the cost side (consumption of resources) of efficiency and profitability (prominently featuring Tsitsakis et. al., 2014a, 2014b).

Papadogonas et al. (2013) analysed the relationship of profitability with market power and cost efficiency under conditions of economic recession. 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 profitability by using two distinct sub-samples in the empirical analysis (prior and following the recent economic crisis)
- b estimate the effect of specific variables such as capitalisation and efficiency.

3 Data and methodology

For the purpose of this study, we used an extensive dataset of 4,433 Greek companies for the 2005–2014 period for which data concerning all variables are currently available. 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 accounting, for approximately 25% of GDP in Greece (directly and indirectly).

For empirical purposes the sample was divided into two subsamples: one comprising the years 2005–2008 (the pre-crisis period) and the other the years 2009–2014 (the period following the outbreak of the crisis).

Based on the main findings of the relevant literature, we have decided to use the following variables as potential determinants of profitability (proxied by the Return on Assets – ROA):

- The *market share* measured by 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.
- *Capitalisation* measured as fixed assets over total assets which gives an indication regarding 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 / inclination 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.
- A *crisis dummy*, i.e., a variable taking the value of 0 and 1 for the pre-crisis (2005–2008) and for the post-crisis period (2009–2014) respectively. 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 have estimated the following model:

$$\begin{aligned} \text{ROA} = & a_0 + a_1\text{MarketShare} + a_2\text{Age} + a_3\text{Leverage} + a_4\text{Capitalisation} \\ & + a_5\text{Investment} + a_6\text{ManagerialEfficiency} + a_7\text{CostEfficiency} \\ & + a_8\text{CrisisDummy} + \varepsilon \end{aligned}$$

We estimated the above equation using panel data for:

- a the total period 2005–2014
- b the pre-crisis period 2005–2008
- c the post crisis period 2009–2014¹

Table 1 summarises the variables used followed by the expected direction of their effect on profitability.

Table 1 Variables used and expected signs

<i>Variable</i>	<i>Meaning</i>	<i>Expected sign (dependent variable: return on assets)</i>
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	(-)
Capitalisation	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). We also tried specifications with either fixed or random effects but their performance was comparatively less satisfactory based on the statistical/econometric criteria usually used. Moreover, there is no indication that the data structure is characterised by period specific heteroskedasticity, contemporaneous covariances, and between-period covariances.

The empirical results are reported in Table 2.

The Table 2 results are in line with findings from previous studies mentioned above (Voulgaris et al., 2000; Agiomirgianakis et al., 2006; Papadogonas, 2007, Papadogonas et al., 2013). The estimated coefficients have the expected signs and the explanatory power of the model is satisfactory.

More specifically:

- *Market share* is a statistically significant determinant of profitability for both periods affecting profitability in a positive way as expected.
- *Age* is also positively correlated with profitability for both periods indicating that experience and reputation is definitely an advantage regardless of the crisis.
- *Leverage* is statistically significant and, as expected, affects profitability negatively since higher debt requires more resources from the firm for debt servicing.
- *Efficiency* is statistically significant and affects profitability positively for both time periods.
- *Capitalisation* is also found statistically significant for both time periods. However, this variable seems to affect profitability in a positive way for the pre-crisis period and in a negative way afterwards. A possible explanation for this result is that during the crisis period firms with high fixed costs cannot effectively compete on low pricing.

- The increase in *net fixed assets*, used as a proxy for the potential use of new technologies, is positively correlated to ROA for both periods but it is statistically significant only for the post-crisis period. This result underlines the fact that the use of new technologies seems to be giving a differential advantage to the firms opting for it, but also probably indicating that firms were forced to use capital budgeting criteria for their investments in the post crisis period.
- The *economic crisis* has affected the profitability of Greek firms in a negative and statistically significant way.

Table 2 Determinants of ROA

<i>Variables</i>	<i>Time period 2005–2014</i>	<i>Time period 2005–2008</i>	<i>Time period 2009–2014</i>
	(a)	(b)	(c)
Market share	3.852*** (5.59)	7.521*** (19.18)	4.461*** (4.81)
Age	0.004*** (5.26)	0.008*** (3.45)	0.004*** (5.31)
Leverage	-0.058*** (7.46)	-0.068*** (29.33)	-0.051*** (7.27)
Capitalisation	-0.008*** (3.78)	0.009*** (16.79)	-0.006*** (4.40)
Investment	2.7×10^{-9} *** (6.20)	1.8×10^{-6} (0.08)	8×10^{-8} *** (7.72)
Managerial efficiency	0.017*** (4.15)	0.025*** (17.02)	0.014*** (4.02)
Cost efficiency	-0.002*** (3.45)	-0.002*** (4.03)	-0.004*** (3.07)
Crisis Dummy	-0.009*** (6.71)	-	-
Adj. R-squared	0.671	0.588	0.577

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).
t ratios are in parentheses. All equations include 2-digit industry dummies.
Standard errors are White heteroskedasticity consistent.

Summarising the findings of revisiting the determinants of profitability one main result is that the economic crisis has adversely affected the profit performance of the Greek tourism enterprises. Also, the direction of the impact of capitalisation on profits seems to be turning negative during the crisis period with a possible explanation lying on the effect of high fixed costs during the crisis. New investment in fixed assets, indicating the use of new technologies, positively affects profitability in a statistically significant way only after the crisis, possibly indicating that resorting to innovation is more or less a one-way street for firms faced with an adverse macroeconomic environment. At the same time, our findings corroborate the importance of efficiency in both managerial and cost terms irrespectively of the time period.

Summing up, the empirical results of this paper are broadly in line with previous studies while complementing them on the issue of how the crisis has affected profitability and its determinants.

5 Conclusions and policy implications

The main purpose of this paper was to revisit the empirical determinants of profitability literature placing special emphasis on the effect of the recent economic crisis. An extensive dataset of firms operating in the tourism sector was used for a period including both a pre-crisis and a post crisis sub-period. Summing up our results, market share, the established brand name (represented by age), investment and managerial efficiency seem to be affecting profitability in a positive way while the opposite holds, as expected, for leverage and cost efficiency. Results are mixed as far as capitalisation is concerned, with a positive impact before the crisis turning negative afterwards. This is one of the main findings of the paper, with a possible explanation being that during the crisis period firms with high fixed costs cannot effectively compete on low pricing.

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 make room for it to play a role as a growth driver for the Greek economy (as would be expected for a sector contributing approximately one fourth of the Greek GDP). Variables such as managerial efficiency, cost efficiency and age are not directly affected by economic policy; however, the opposite holds for leverage and investment. One of the main problems of the Greek economy is the lack of liquidity and the corresponding high borrowing costs. Credit expansion has been limited for a number of years as a result of the operation of the banking system being affected by the prolonged and deep recession: not only resources are scarce but also banking institutions have to comply with strict capital requirements at a time when NPLs are increasing on a steep trajectory and financing from the ECB is limited and comparatively expensive (through the ELA mechanism). As a result, it is imperative for economic policy to contribute to the resolution of uncertainty clouding the prospects of the Greek economy. A clearly set path for the Greek economy in the years to come, following an agreement with other Eurozone countries, the ECB, the ESM and the IMF, would safeguard the stability of the banking system and secure lower borrowing costs for the private sector. Adequate financing at a reasonable cost is the first step to ensure the growth prospects of important sectors such as tourism, which would then provide a 'kick-start' for the real economy.

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Notes

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