Foreign-owned versus domestically-owned firms: evidence from Greece

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Jel classification: L250, Q140

Abstract

The aim of this paper is to investigate whether foreign-owned firms perform significantly better than domestically-owned firms using panel data for 177 Greek manufacturing and trading firms listed on the Athens Stock Exchange in Greece, for the period 1995-2000. The t-test results indicate that there are significant differences in terms of return on assets, return per employee, size, age and efficiency index. Moreover, the fixed effects method is applied to investigate if there are differences in those factors affecting the profitability of foreign-owned and domestically-owned firms. The Chow test proves that the two different groups exist. The results show that the profitability of domestically-owned firms increases when there is a high level of growth and an efficient use of borrowed capital, while the profitability of foreign-owned firms increases with an efficient use of sales promotion expenditures and an efficient access to the innovation activity of its parent organization, without spending on R&D in the host country.

Key words: performances, manufacturing firms, profitability

Introduction

The continuously growing influence of foreign direct investment (FDI) on corporate performance has raised considerable interest by academics and policy-makers. During the last few decades, the global FDI inflows have substantially increased from $25 bn in 1973 to $1,271 bn in 2000 (UNCTAD 2003). Developing and transition world economies became increasingly crucial targets for FDI. Greece has also adopted a policy encouraging inward FDI since the early 1950s. The main tools were tax relieves and institutional changes allowing almost free capital movements, especially full profit repatriation under certain conditions. In the 1960s, FDI picked up for a short time and remained rather limited until the beginning of 1990s. Since then, and in agreement with the SMP, it has shown an increasing presence, by reaching 10 and 14 percent of domestic fixed capital formation in 1994 and 1995 respectively. Recent changes in the government policy offered extra support to multinational firms mainly through institutional changes (Barrios et al., 2004; Barbosa and Louri, 2002). The FDI inflows in 2000 reached the magnitude of USD 1.1 billion and this rise was kept also in 2001 despite the recession in the international FDI acts (Kokkinou and Psyharis, 2004).

The main challenging question in the international business strategy study is the outcome gained from FDI. There is considerable theoretical and empirical research on how host countries benefited from FDI. On the one hand, the Dunning’s «eclectic paradigm» of international production incorporates «internationalization theory» and adds two other dimensions needed to explain international activity. A firm must perceive that, in addition to Internationalization advantages (I), it has O advantages, and there also exist Location specific advantages (L) of the host country before it sets up production activities abroad. O advantages must enable subsidiaries of Multinational Enterprises (MNEs) to more than offset the disadvantages that firms confront penetrating foreign markets and relating to technology, marketing and management skills and expertise in managing oligopolistic industries. I advantages relate to the host country and may for example refer to the existence of raw materials and other assets not available in the home country, international transport and communication costs, less rigorous legislation, a more favourable domestic business environment. I advantages refer to ability of the firm has to circumvent or exploit market failures (i.e. to control market outlets, avoid or exploit government intervention, etc., Anastassopoulos, 2004).
According to Pantelidis and Nikolopoulos (2008), it seems that the most influential host country determinants for Greece are the market characteristics, the availability of human resources and technological inputs, and labour cost. Market size along with differentiated demand patterns, allowed by the increase of personal incomes as the country develops, motivates FDI that requires local inputs in the form of skilled labour and ability to transfer and adapt technology, which complement the MNEs ownership advantages and make their deployment via FDI more efficient than other modes of exploitation.

However, it is not necessary that foreign-owned firm earns higher profits than a domestic company in order to have a long-term presence in a foreign market. As several authors from Hymer (1960) onwards have pointed out, a subsidiary entering a foreign market may face certain disadvantages. It would be expected that factors related to the structure of competition in the host country as well as the economic, social and political structure of the host country could cause lower profits for a foreign-owned firm. In an oligopolistic industry, the level of profits for a foreign firm may be higher but its volatility may increase as well. Domestic firms may be further along the learning curve as a result of having previously operated in the market, but they may also possess O advantages of different types with respect to multinational firms, and income generated assets that do not originate from or promote the multinational nature (Anastassopoulos, 2004; Maroudas & Rizopoulos 1995; Thiman & Thum, 1998).

The paper is organized as follows: Section 2 describes the results of earlier studies referring to the differences between foreign and domestic firms. In Section 3, the empirical evidence about the differences in basic indicators between foreign and domestic firms is examined using the t-test. Section 4 explains a model of firm profitability and draws theoretical predictions about the relation between profitability and other firm level variables. Section 5 describes the analysis method the results, whereas concluding remarks are provided in Section 6.

2. Literature Review

Earlier and recent empirical studies conclude that foreign-owned firms performed better than the domestically-owned ones. Studies by Vernon (1971), Haex et al. (1979), Kumar (1984), Grand (1987), Boardman et al. (1997), Isik (2004) Duma et al. (2006) found that foreign-owned firms modestly earned higher rates of return on sales and assets than domestically-owned firms. Gunduz and Tatoglu (2003) employed the one-way analysis of variance to investigate the effect of foreign ownership on performance of 202 non-financial firms in Turkey in 1999. The finding reveals that foreign-owned firms have significantly better performance than domestically-owned firms regarding ROA, but not in other financial performance ratios. Also in the study of Aydin et al. (2007), using data for corporations listed in ISE in Turkey, results show that firms with foreign ownership performed better than domestic firms for the period 2003-2004 in Turkey.

Akimova and Schwodiauer (2004) examined the impact of ownership structure on corporate performance and governance of privatized corporations in Ukrainian transition economy. Their results show that there are significant ownership effects on the performance, but in a non-linear relationship. In other words, its effect is positive up to a point and negative after that. In another study, using data for firms in Japan, Kimura and Kiyota (2006) found that foreign-owned firms not only reflect superior characteristics in the static sense, but also achieve faster growth in both profitability and productivity.

Sign et al. (2007) using a sample of 889 Indian firms, analyze the relationship between diversification and operating performance. They prove that while multinational affiliates may see an agency conflict since the negative impact of diversification on performance, domestic affiliates may have diversification cost inefficiencies resulting in poor performance. Also, in a study by Douma et al. (2006), results show that the positive effect of foreign ownership on firm performance is substantially attributable to foreign corporations that have, on average, larger shareholding, higher commitment and longer term involvement.

For Greece, Barbosa and Louri (2002) addressed the issue of the ownership structure that multinational firms select when they invest abroad. This is an important question for both multinational and domestic partners as it affects the profitability of invested assets. Using data from Greece and Portugal they find that both firm and industry characteristics interacting with location affect ownership decisions. Louri et al. (2002) examined the micro determinants of the degree of ownership multinationals select when expanding their production abroad. Using data on 216 foreign firms located in Greece in 1998, they find that firm and industry characteristics, through their effects on expected returns, shape ownership decisions.

Anastassopoulos (2004), using a panel data for 75 firms between 1988 and 1992 on the Greek food industry, proved that determinants of profitability differ between foreign and domestically-owned firms. Domestically-owned firms’ profitability depends on their market share and product differentiation, through local advertising and local R&D. Foreign-owned firms’ profitability depends on their market share, knowledge and experience acquired in the local market, training intensity and product differentiation through the use of technological inputs from international and local advertising. In another study by Barbosa and Louri (2005) on a sample of 2651 Greek firms surveyed in 1997, authors investigated whether multinational enterprises perform differently from domestically-owned firms. Multinational enterprises are found to perform significantly better than domestic firms.

In our study we use a panel data set of 177 manufacturing and trading firms listed in the Athens Stock Exchange be-
between 1995 and 2000 in order to find out if there are significant differences between foreign-owned and domestically-owned firms located in Greece. The following hypotheses are tested:

Hypothesis 1: Foreign-owned firms reflect superior basic indicators than domestically-owned firms;

Hypothesis 2: Factors affecting profitability differ between foreign-owned and domestically-owned firms.

3. Foreign-owned versus domestically-owned firms

3.1 Data

The data source used in this paper is the Athens Stock Market database. Balance Sheets and Income Statements of 177 large manufacturing and trading firms, listed in the Greek Stock Market, are collected for the period 1995-2000. The financial data set consists of both foreign and domestic firms located in Greece.

Following other similar studies, domestically-owned firms are defined as those with less than 10% of equity share held by foreigners, while foreign-owned firms are defined as those with an equity share held by foreigners being equal to or higher than 10% (Barbosa and Louri, 2002; Kimura and Kiyota, 2007; Taymaz and Ozler, 2007).

In order to examine the first hypothesis, t-test statistics is performed to test whether there are significant differences in terms of return on assets (ROA), return on equity (ROE), return on employees, size, age, growth, sales over total assets, R&D, promotion expenses and leverage between foreign-owned and domestically-owned firms.

3.2 Hypotheses

The hypotheses are: H₀: there is no significant difference between foreign-owned and domestically-owned firms in terms of ROA, ROE, REM, SIZE, AGE, STA, GR, R&D, PROM, LEV;

H₁: there is significant difference between foreign-owned and domestically-owned firms in terms of ROA, ROE, REM, SIZE, AGE, STA, GR, R&D, PROM, LEV.

Table 1 presents basic indicators of foreign-owned firms and Greek firms for the period 1995-2000. Basic indicators include profitability (ROA, REM and ROE) and other characteristics such as size (in terms of total assets and number of employees) age, growth, R&D expenses, promotion expenses and financial characteristics (efficiency index and leverage).

On average, foreign-owned firms have higher profitability than domestically-owned ones (ROA=0.103 and 0.077, for foreign-owned and domestic-owned ones respectively), and when their ROA are compared, the H₀ is rejected since there are significant differences between foreign-owned and domestically-owned one with 7% level of significance (p=0.07). As for REM, there are consistent results. Also in this case, the H₀ is rejected since there are significant differences between foreign-owned and domestically-owned firms even at 1% level of significance. However, there are no significant differences between domestically-owned and foreign-owned firms in terms of ROE.

Regarding SIZE, in terms of number of employees, foreign-owned firms have on average about 544 employees while domestic firms’ employees are almost a half (279 employees). According to the results of t-test, H₀ is also rejected (p=0.000<0.01), since there is significant difference between the SIZE of foreign-owned and domestically-owned firms. Results are consistent when SIZE is measured in terms of total assets.

On average, foreign-owned firms are older than domestically-owned firms, which may mean that the older and better-established domestic firms have cooperated with multinational firms in order to expand their market share or benefit from the multinational enterprises’ knowledge in terms of reducing running costs, distribution networks, etc. According to the results of t-test, H₀ is also rejected (p=0.008<0.01), since there are significant differences between the two groups.

With respect to asset utilization efficiency, represented by sales over total assets, the two groups are significantly dif-

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**Table 1 – T-test for comparison of means between foreign-owned and domestically-owned firms.**

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<th>T-TEST FOR COMPARISON OF MEANS</th>
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<td>SIZE (assets)</td>
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<tr>
<td>AGE</td>
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<td>SALES/Total assets</td>
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<tr>
<td>PROM</td>
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<td>LEV</td>
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* and ** denote statistical significance at 5% and 1% level of significance.
ferent from each other, and results are different in case of LEV and R&D. Table 1 shows that there are no significant differences between domestically-owned and foreign-owned firms as for GR, promotional intensity, R&D and LEV.

4. Model Specification

In order to test the Hypothesis 2 for which factors affecting profitability differ between foreign-owned and domestically-owned firms, we have to specify a model of firm performance. In line with prior studies that examined the relationship between a firm profitability and its ownership (e.g. Barbosa and Louri, 2005; Anastassopoulos 2004; Kimura and Kiyota, 2007; Taymaz and Ozler, 2007), we use the following regression specification:

\[ \text{Profitability} = f(\text{firm quality variables, financial variables}) \] (1)

Thus, based on equation (1), we specify the following empirical model:

\[ \text{ROA} = a_0 + a_1 \text{SIZE} + a_2 \text{AGE} + a_3 \text{GR} + a_4 \text{R&D} + a_5 \text{PROM} + a_6 \text{LEV} + a_7 \text{STA} \] (2)

Where, we measure firm size with firm’s total assets at time t, which we log-transform. Firm age is the logarithm of the number of years a firm operates in an industry, GR is measured as the ratio of firm’s sales of year t over sales of year t-1, R&D as the logarithm of the ratio of R&D expenditures over sales. Promotional intensity is measured as the ratio of promotional expenses over total assets and is used as proxy for product characteristics. As financial variables, we include LEV which is the ratio of total liabilities over total assets, and STA which is the ratio of sales over assets.

We use return on assets (ROA) as dependent variable to indicate accounting-based (i.e. financial) performance. Other accounting measures such as return on sales or return on equity are available but using return on assets enhances our study’s comparability with the many previous variance decomposition studies that have used ROA (Short et al., 2007).

The firm size is included to account for the potential economies of scale and scope accruing to large firms. If present, these would produce a positive relationship between firm size and profitability. This argument has its roots in the early industrial organization literature (Shepherd, 1972; Markides, 1995; Majundar, 1997; Sign et al., 2007). On the other hand, small firms may be able to compensate their cost differentials by adopting more flexible managerial organizations and methods of production responding more rapidly to changes in the competitive environment and obtaining higher profits.

Older firms are more experienced, receive the benefits of learning and are associated with first mover advantages. However, older firms are also arguably prone to inertia and are less flexible in their ability to adapt to competitive pressures that can negatively affect firm performance (Glancey, 1998; Douma et al., 2006) \((a_2 < 0)\).

The growth rate of firms is included to measure demand conditions the firm can be faced with, as well as product cycle effects. In relatively fast-growing markets, firms are expected to experience above-average profitability. Higher growth opportunities make it possible to continuously generate revenue growth through profitable ventures (Markides, 1995; Gedajlovic and Shapiro, 1998; Sign et al., 2007) \((a_3 > 0)\).

It is considered natural that high levels of R&D intensity are linked with profitability. However, there are several studies on Greek manufacturing firms that undergo a negative impact (Spanos et al., 2001; Caloghirou et al., 2004). In particular, research found that Greek firms tend to favour a marketing-based type of advantage relative to the more costly, technology-based forms of competition such as innovation \((a_4 < 0)\).

Promotion expenses affect the elasticity of demand by differentiating products. As an element of market structure, product differentiation increases the consumer loyalty, makes the demand for the products of the firm more inelastic and, in many cases, acts as barrier to new competition. So higher promotion expenses ought to result in higher profitability. Profits are expected to be distributed between the firms that are most successful in differentiating their brands \((a_5 > 0)\).

Lower leverage generally indicates greater financial security. However, there are cases where the firm needs financial support to invest in modern technology. Value-maximization theory (Copeland and Weston, 1983) suggests the existence of optimal leverage for a firm, which is determined by the trade-offs between the benefits of borrowing and the associated risks \((a_6 < 0\) or \(a_6 > 0)\). The asset utilization efficiency, represented by the ratio of sales over total assets, is used as an inverse measure of agency conflict and is expected to positively affect profitability \((a_7 > 0)\).

5. Method of Analysis and Results

A number of researchers (Hsiao, 1986; Klevmarken, 1989; Solon, 1989) claim that only panel data can control the individual heterogeneity, can give more informative data, more variability, less co-linearity, more degrees of freedom.
freedom and more efficiency. Also they argue that panel data are able to better identify and measure effects that are simply not detectable in pure cross-sections or pure time-series data and allow us to construct and test behavioural models being more complicated than purely cross-section or time-series.

In our study, the application of the Hausman test for fixed effects (OLS-dummy variable) or random effects (error component) shows that the fixed effects model is the advisable estimation method ($H=33.38$, $df=7$, $p=0.000$). In order to examine if domestically and foreign-owned firms behave in a different manner, we separately estimated the same model for each group. The results of Hausman–Test for the two separate groups are the same. The fixed effects method is the advisable one since $H=29.78$ for $df=7$ and $p=0.001$ for domestically-owned firms and $H=21.76$ for $df=7$ and $p=0.002$ for foreign-owned firms. Table 3 shows the fixed effects results for profitability equation for the period 1995–2000 for the whole sample, and the two groups separately. Then we applied Chow-test to examine whether the respective coefficients obtained from the two samples are statistically different. The estimated value for the Chow-test is found $F^*=3.42$ while the theoretical value of $F$ for $v_1=8$ and $v_2=662-(2\times11)=640$ degrees of freedom is $1.57$. Thus, $F^*>F_{01}$ shows that the coefficients of the variables are different in the two groups for 1% level of significance.

The results show that size has a negative and statistically significant effect on profitability for both groups. This is in line with the results of Anastassopoulos (2004), while Vlachvei and Notta (2006) prove that there is a maximum size above which the higher the size the lower the profitability.

There is a positive relationship between profits and firm age in case of the entire sample and domestically-owned firms, but insignificant in case of foreign-owned firms. Taking into account from the descriptive statistics we show that foreign-owned are on average older than domestic firms, we conclude that their superior performance may not be due to their age but can be explained by other strategies and advantages deriving from their multinational nature.

The relationship between firm growth and profitability has a positive and significant sign in case of the whole sample and domestically-owned firms, meaning that fast growing firms are more profitable. However, the effect of growth in case of foreign-owned firms is negative but not statistically significant.

The coefficient of promotional intensity has a positive and significant sign in case of foreign-owned firms but negative and significant sign for domestically-owned firms. Industries where sales promotion expenditures are important mostly attract marketing intensive foreign firms. Such firms have created a brand name, which can be seen as an intangible asset. Results show that foreign firms can effectively use sales promotion expenditures to increase profitability, differently from what happens with to domestically-owned firms.

The effect of R&D is insignificant in case of domestic firms but negative and statistically significant in case of foreign-owned firms. The latter can be explained if we take into account that the average R&D intensity of foreign-owned firms is less than in case of domestic firms. However, foreign-owned firms typically enjoy technological superiority, strong brand loyalty and high visibility. This may mean that foreign-owned firms enjoy access to the knowledge base of their parent and of the network of the parent, and invest on a local R&D department only to transfer and adapt this knowledge to local market condition. The coefficient of leverage is positive and statistically significant in case of domestically-owned firms which may mean that domestic firms can effectively use borrowed capital, while in case of foreign firms the effect of leverage on profitability is found insignificant. The effect of efficient index (sales over total assets ratio) is insignificant in all groups.

6. Concluding Remarks

This paper firstly confirmed significant differences between foreign-owned and domestically-owned firms and then investigated the relevant factors that may explain the differences in performance between the two different groups for a large cross-section of Greek firms. The study uses panel data for 177 Greek large manufacturing and trading firms, present in the Athens Stock Market during the 1995-2000 period.

<table>
<thead>
<tr>
<th>Table 3 – Profitability of Greek firms from 1995 to 2000.</th>
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<tr>
<td>Variables</td>
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<td>SIZE in terms of total (3.81)**</td>
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<tr>
<td>AGE</td>
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<tr>
<td>GR</td>
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<td>R&amp;D</td>
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<td>PROM</td>
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<td>Adj R²</td>
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<td>Haussman</td>
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<td>F* test (Chow Test)</td>
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<td>Num. of Observ.*</td>
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** denote statistical significance at 1%. There are 177 annual observations with no complete data for all variables.
The descriptive statistics show that foreign-owned firms have, on average, higher profitability, larger size, and are older and more efficient than domestically-owned firms. T-test results proved there are significant differences between the two groups of firms regarding ROA and REM, size, age and efficient index.

The results of the fixed effects method show that the determinants of foreign firm’s higher performance are different than the ones referring to domestic firms. Profitability of domestically-owned firms increases when there is a high level of growth and an efficient use of borrowed capital. On the other hand, profitability of foreign-owned firms located in Greece increases with efficient use of sales promotional expenditures, small size and efficient access to the innovation activity of the global parent and of the network of the parent and by adapting this knowledge to local market condition, without spending on R&D in host country.

References


