M&AS, ECONOMIC PERFORMANCE AND INTERNATIONAL ORIENTATION OF THE GREEK ACQUIRING LISTED FIRMS AT A LONG-RUN PERSPECTIVE

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Abstract
This paper examines empirically the impact of M&As on the post-merger economic performance of Greek merger-involved firms at a long-run perspective and in accordance to their international orientation (domestic or international M&As). The post-merger economic performance of an extensive sample of Greek acquiring listed firms is investigated with accounting data analysis. For the purpose of the study, two profitability ratios (ROA, ROE) are employed, in order to measure firms’ post-merger economic performance. The received results revealed that there is no significant change of any examined variable in the post-merger performance at the sample firms. Furthermore, concerning firms’ international orientation, the ratio results are combined with their decision for an international M&As or not. From this point of view, the research revealed that there is no difference from the international orientation (domestic or international M&As) for the acquiring firms of the research sample at none of the two examined accounting ratio.

Key words: mergers; acquisitions; financial ratios; post-merger economic performance; international M&As; accounting data; Greece

JEL Classification: G34, F23, M40

1. Introduction
The strategy literature commonly argues that M&As are one of the mechanisms by which firms gain access to new resources and, via resource redeployment, increase revenues and reduce cost. The main hypothesis in successful M&As activities is that potential economic benefits arising from them are changes that increase business performance that would not have been made in the absence of a change in control (Pazarskis, 2008).1

Notwithstanding, the process of internationalisation and the expansion of the European Union has fostered the whole activity in recent years: foreign direct investment by multinational companies has grown rapidly, international trade increased faster than the rate of growth of national economies, and supra-national institutions, such as the EU and the WTO, promoted ever more inter-linked economies over national governments, which led to an international perspective of M&As and an increasingly competitive worldwide business environment (Lyroudi et al., 1999; Agorastos et al., 2006).

Hence, except of the “well-explored” cases of the US and the UK capital markets, there were only a few of extensive researches on M&As in the majority of other countries globally, diachronically. This proposition seems to be even more correct, if it is referred to the post-merger performance studies which employ accounting data (financial ratios), than event studies based on stock returns (Sudarsanam, 2003). Regarding the Greek market, which

1 For an extensive literature review about the motives for M&As, in general, see: Jensen, 1986; Ravenscraft & Scherer, 1987; Ravenscraft, 1988; Pazarskis, 2008.
recently has been upwarded from a developing to a developed economy, there have been a few studies on M&As, most of which are either questionnaires of the involved firms’ executives or event studies based on announcement and completion dates, and there is a scarcity of post-merger performance studies with ratio analysis regarding firms involved in M&As activities, especially in the long run perspective.

The originality of this study is that it focuses on the latter issue and tries to obtain new insights on the subject. Furthermore, investigating listed firms’ post-merger performance, through a long-term accounting analysis for the majority of Greek listed firms in a eight-year-period, present the recent final status of merger activities (successful or not) for a potential investor at the Greek market, and with a special perspective on international M&As (Pazarskis et al., 2010a).

In order to examine the complex phenomenon of M&As in Greece, this study analyses empirically the pre- and post-merger economic performance of a sample of Greek firms, listed in the Athens Stock Exchange (ASE) that executed one merger or acquisition in a eight-year-period as acquirers. Using a set of ROA and ROE type measures (financial ratios), it attempts to investigate the M&As effects on the post-merger economic performance of the selected sample of seventy two firms. Furthermore, these results are combined with firms’ potential international orientation (international M&As or not) of these listed firms in order to reveal if this potential is a successful decision or not.

The structure of the paper is as follows: the next section presents the research design of this study (literature review; sample and data; selected accounting ratios; methodology and hypothesis). The following section analysed the ratio results. The next one following proposes concerning the research results further interpretations and evidence. Last, the next section concludes the paper.

2. Research Design
2.1. Selection of methodology and related past researches

Several past research papers on accounting and finance argue that stock price performance studies are unable to determine whether M&As create real economic gains or losses and to provide evidence on the sources of any merger-related economic result, as it difficult to distinguish between stock-market inefficiencies and improvements in economic performance resulting from the merger (for a comprehensive review on this argument, see: Healy, et al., 1992). The examined increases or decreases in equity values are typically attributed to some unmeasured source of real economic factors (such as synergy) or to a general and not well established idea (as management past decisions) (Pazarskis, 2008; Pazarskis et al., 2011).

However, this kind of research, along with their explanations, could partially not be correct, as many other factors influence stock prices and their conclusions do not provide clear and conclusive results argumentation . In this context, the use of post-merger accounting data and, especially, financial ratios from financial statements which have been examined for their credibility is a better and safer path to test directly for changes in post-merger performance that result from mergers than stock price studies².

² The abnormal returns in order to be calculated with the market model depend on the market index. According to Spyrou (1998), Michailidis et al. (2006) and Artikis et al. (2010) the Greek market index which is called the General Market Index of the Athens Exchange needs to be redefined in terms of the way it is structured, because it does not represent the Greek stock market well (Pazarskis et al., 2011). Therefore, this study did not want to be exposed to this factor by using abnormal returns and thus it was concentrated on the financial ratios. Furthermore, the purpose of our study is not to do an event study on mergers so that the abnormal returns to be critical to evaluate our results and test our hypotheses. This is beyond the scope of the present research. The study aims to evaluate the performance based on the traditional financial ratios.
Many past studies on accounting and finance, conducted with data of four decades ago or more, revealed that, in general, M&As transactions have resulted in poor performance of their involved firms (for the US cases with these results, see: Kelly, 1967; Reid, 1968; Monroe & Simkowitz, 1971; Stevens, 1973; and others; for the UK cases, see: Newbould, 1970; Singh, 1971; Tzoannos & Samuels, 1972; Buckley, 1972; Kuehn, 1975; Firth, 1976; and others).

More recent studies on M&As performance, that employed accounting data or ratios, were conducted during the last three decades and concluded on ambiguous results. Many of them supported an improvement in the post-merger economic performance after the M&As action (Cosh et al., 1980; Parrino & Harris, 1999; Megginson et al., 2004; Choi & Philippatos, 2005; Abhyankar et al., 2010; and others), while others claimed that there was a deterioration in the post-merger firm performance (Meeks, 1977; Salter & Weinhold, 1979; Mueller, 1980; 1985; Kusewitt, 1985; Neely & Rochester, 1987; Ravenscraft & Scherer, 1987; Dickerson et al., 1997; Sharma & Ho, 2002; and others). Other researchers concluded in confronting results or simply, a “zero” result from the M&As action (Kumar, 1984; Healy et al., 1992; 1997; Chatterjee & Meeks, 1996; Ghosh, 2001; Ramaswamy & Waegelin, 2003; and others).

2.2. Variable classification and ratio selection

Financial ratios are widely used for modelling purposes both by practitioners and researchers, as their analysis is one of the most valuable tools for the decision-making of many interested parties, stakeholders: owners, management, personnel, competitors, academics, etc. Their analysis facilitates inter-company as well as intra-company comparisons beyond various argumentations.

The economic performance of a firm is evaluated with its performance at some profitability ratios. For the purpose of this study, two financial ratios (profitability ratios) are employed, which are the following ratios (see, table 1):

<table>
<thead>
<tr>
<th>Code</th>
<th>Variable Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>ROA - Return On total Assets (after taxes)</td>
</tr>
<tr>
<td>V2</td>
<td>ROE - Return to Owner’s Equity (after taxes)</td>
</tr>
</tbody>
</table>

2.3. Sample and data

The final “uncontaminated” sample consists of seventy two acquiring firms, listed in the Athens Stock Exchange (ASE) that executed one M&As action as acquirers in Greece during the period from 1998 to 2005. The research sample is investigated with accounting data analysis from 1996 to 2007 (analysis for two years before and after the examined merger events). The study consider only this final sample of seventy two firms as these firms have not had done any other important M&As action during this period and their M&As transactions have consisted of an important investment that assure the acquiring firm management. The percentage of sample’s M&As events by year is illustrated at Table 2 (see below).
Table 2. Percentage of sample’s M&As event by year

<table>
<thead>
<tr>
<th>Year</th>
<th>Events</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>8</td>
<td>11.1%</td>
</tr>
<tr>
<td>2004</td>
<td>16</td>
<td>22.2%</td>
</tr>
<tr>
<td>2003</td>
<td>10</td>
<td>13.9%</td>
</tr>
<tr>
<td>2002</td>
<td>16</td>
<td>22.2%</td>
</tr>
<tr>
<td>2001</td>
<td>11</td>
<td>15.3%</td>
</tr>
<tr>
<td>2000</td>
<td>7</td>
<td>9.7%</td>
</tr>
<tr>
<td>1999</td>
<td>3</td>
<td>4.2%</td>
</tr>
<tr>
<td>1998</td>
<td>1</td>
<td>1.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72</td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

The final sample with 72 M&As events is very satisfying as it includes all the M&As events of listed firms in the Greek market at the above referred period (according to the sample criteria of this study) and very reliable in comparison to prior accounting studies conducted in significantly larger markets such as US and UK (Sharma & Ho, 2002), with almost the same or fewer sample firms, as: Healy et al., 1992 : \( n = 50 \), Cornett & Tehranian, 1992 : \( n = 30 \), Clark & Ofek, 1994 : \( n = 38 \), Manson et al., 1995 : \( n = 38 \), etc.

The study proceeds to an analysis only of listed firms as their financial statements are published and it is easy to find them and evaluate from them firms’ post-merger economic performance. The accounting data of this study (financial ratios) are computed from the financial statements of the M&As-involved companies, and in some cases, data were received from the databank of the University of Macedonia (Thessaloniki, Greece).

2.4. Research Hypotheses

The M&As action of each company from the sample is considered as an investment that is evaluated by the Net Present Value (NPV) criterion (if \( NPV \geq 0 \), the investment is accepted). Based on this viewpoint, the study proceeds to its analysis and regards the impact of an M&A action similar to the impact of any other positive NPV investment of the firm to its ratios in the long-term (Healy et al., 1992).

In order to evaluate the relative change with ratio analysis of the sample of the Greek firms that executed M&As actions, the general form of the hypothesis that is examined for each financial ratio separately (ratios: \( V_1; V_2 \)) is the following:

- \( H_0_i \): There is expected no relative change of the financial ratio \( i \) from the M&As event.
- \( H_1_i \): There is expected relative change of the financial ratio \( i \) from the M&As event.

where,

\[ i = \{ V_1, V_2 \} \]

The crucial research question that is investigated by examining the above mentioned ratios is the following: “Economic performance in the post-merger period is greater than it is in the pre-merger period?” (Pazarskis, 2008).

The selected financial ratios for each company of the sample over a two-year period before (year T-2, T-1) or after (year T+1, T+2) the M&As event are calculated, and the mean
from the sum of each financial ratio for the years T-2 and T-1 is compared with the equivalent mean from the years T+1 and T+2, respectively.

To test this hypothesis for the sample firms two independent sample mean t-tests for unequal variances are applied, which are calculated as follows:

\[ t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \]

where,
- \( n \) = number of examined ratios
- \( \bar{X}_1 \) = mean of pre-merger ratios
- \( \bar{X}_2 \) = mean of post-merger ratios
- \( s \) = standard deviation
- 1 = group of pre-merger ratios
- 2 = group of post-merger ratios

Also, the study does not include in the comparisons the year of M&As event (Year 0) because this usually includes a number of events which influence firm’s economic performance in this period (as one-time M&As transaction costs, necessary for the deal, etc.) (Healy et al., 1992; Pazarskis, 2008; Pazarskis et al., 2010b).

Last, the research ratio results are presented in the next section.

3. Analysis of Ratio Results

The results from the evaluation of the relative change for an eight-year-period of each financial ratio of the sample (ratios: V1; V2), according to the above referred hypothesis are depicted in Table 3 (see, below). More analytically, for the two profitability ratios (ROA and ROE), there is no significant change of any examined variable. This result is consistent with the results of some studies such as: Kumar, 1984; Healy et al., 1992; 1997; Chatterjee & Meeks, 1996; Ghosh, 2001; and Ramaswamy & Waegelein, 2003.

However, it is not consistent with the results of some other past studies whereby: Neely & Rochester (1987) found a decline of the profitability ratios, especially the ROA, in the post-merger period, for the US market. Sharma & Ho (2002) also found a decline for the ROA and the ROE ratios, for the Australian market. Similar results, with a decline of the profitability ratios, have been found by Meeks (1977), Salter & Weinhold (1979), Mueller (1980; 1985), Kusewitt (1985), Ravenscraft & Scherer (1987); Kaplan & Weisbach (1992); Dickerson et al. (1997).

\[ \text{In this study, the mean from the sum of each accounting ratio is computed than the median, as this could lead to more accurate research results (Pazarskis, 2008). This argument is consistent with many other researchers diachronically (Philippatos et al., 1985; Neely & Rochester, 1987; Cornett & Tehnarian, 1992; Sarri, 1996; Sharma & Ho, 2002; Pramod Mantravadi & A. Vidyadhar Reddy, 2008; Pazarskis et al, 2006; 2010b; Alexandrakis et al., 2012; and others). Despite this, the study presents the research results with a median analysis performing the Mann-Whitney test, as a non-parametric alternative test to the two-sample t-test, without emphasizing on them, but only for comparison with past studies (Healy et al., 1992; Ramaswamy & Salatka, 1996; etc.) or other ratio studies that employ a methodology with the use of median for ratio calculations.} \]
Table 3. Mean pre-merger and post-merger ratios for a eight-year-period

<table>
<thead>
<tr>
<th>Code</th>
<th>Variable</th>
<th>Pre-merger (2 years avg.)</th>
<th>Post-merger (2 years avg.)</th>
<th>P-Value</th>
<th>Confidence Interval 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>ROA -Return On total Assets</td>
<td>0,20</td>
<td>1,75</td>
<td>0,605</td>
<td>(-4,28; 7,32)</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>0,404</td>
<td>0,089</td>
<td>0,002</td>
<td>(-0,602; -0,024)</td>
</tr>
<tr>
<td>V2</td>
<td>ROE -Return to Owner’s Equity</td>
<td>-16,0</td>
<td>2,20</td>
<td>0,442</td>
<td>(-29,2; 66,6)</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>1,117</td>
<td>0,135</td>
<td>0,0019</td>
<td>(-1,489; -0,047)</td>
</tr>
</tbody>
</table>

Note: a, b, c indicate that the mean change is significantly different from zero at the 0.01, 0.05, and 0.10 probability level, respectively, as measured by two independent sample mean t-tests.

More analytically, the P-value interpretation levels for the above referred three cases are described below:

- p<0.01: strong evidence against Ho (see, a)
- 0.01≤p<0.05: moderate evidence against Ho (see, b)
- 0.05≤p<0.10: little evidence against Ho (see, c)
- 0.10≤p: no real evidence against Ho

Furthermore, our results for the Greek market, since there is no significant profitability improvement, do not support the hypothesis of market power (Lubatkin, 1983; 1987). According to this approach, the market power that was gained by the acquirer after the merger or the acquisition should increase the new firm’s profit margins and therefore, its profitability (Pazarskis et al., 2011).

Last, regarding the results as indicating by the median significant change at the two probability ratios (see, Table 3, for the results with the title: Median), measured by the Mann-Whitney test⁴, there is a significant change and a decline of ROA and ROE ratios and this argues also that a different approach (with a median analysis approach) could lead to different results and partially no accurate results (see, note 3) for the post-merger economic performance of Greek listed examined firms of the sample.

4. Interpretation of Results and Further Evidence

As the strategy literature commonly argues, mergers and acquisitions are one of the mechanisms by which, firms gain access to new resources, reducing costs and increasing revenues via resource redeployment. International business researchers for international M&As have extended the concept of resource opportunities to include a geographic component (Agorastos et al., 2006). Furthermore, transactions of international M&As are considered for the acquiring firm as higher risk investments in a new environment, but also provide opportunities for higher profitability with the development of economies of scale at the hosting country of the investment (Hymer, 1976).

In order to examine the impact of the international expansion or not at the post-merger economic accounting performance with the research examined two profitability ratios, regarding to the above referred argument, the study analyses this data of the sample firms and categorize them in two groups from this respect:

⁴ Mann-Whitney test is applied for a median analysis in order to test the equality of two population medians, as this test is a non-parametric alternative test to the two-sample t-test. This study do not emphasize on medians’ results (as the median is only a point of time in the post-merger period for firm performance without reflecting the midterm of the post-merger performance and thus this study considers means’ results more accurate), but presents them only for comparison with other past studies that employed medians’ calculations.
71% (51 firms) has done a domestic M&As and 29% (21 firms) of the sample firms have performed an international M&As.

Next, the differences between the means of post-merger and pre-merger ratios (ratios V1 to V2) are computed as below:

\[
\Delta V_i = \bar{X}_{2,i} - \bar{X}_{1,i}
\]

where,

\(\Delta V_i\) = difference between the means of post- and pre-merger ratios

\(i\) = examined ratios \{V1, V2\}

\(\bar{X}_{1,i}\) = mean of pre-merger examined ratios

\(\bar{X}_{2,i}\) = mean of post-merger examined ratios

Then, for these data (see, \(\Delta V_i\)), after the rejection of the null hypothesis that the data sample has the normal distribution, a non-parametric test is applied, as non-parametric tests imply that there is no assumption of a specific distribution for the data population: the Kruskall-Wallis test.

The Kruskall-Wallis test is a nonparametric test, alternative to a one-way ANOVA. The test does not require the data to be normal, but instead uses the rank of the data values rather than the actual data values for the analysis. The general calculation form of the Kruskall-Wallis test statistic is for H:

\[
H = \frac{12}{N(N+1)} \sum n_j (\bar{R}_j - \bar{R})^2
\]

where,

\(n_j\) = the number of observations in group j

\(N\) = the total sample size

\(\bar{R}_j\) = the average of the ranks in group j,

\(\bar{R}\) = the average of all the ranks.

The received results are presented in the Table 3 (see, below). From the above received results, it is clear that there is no difference from the international orientation (domestic or international M&As) for the acquiring firms of the research sample at any of the two examined accounting ratio.

Thus, the result of this study is not consistent with Hymer’s (1976) argument that the transactions of international M&As are considered for the acquiring firm as higher risk investments in a new environment, but also provide opportunities for higher profitability with the development of economies of scale at the hosting country of the investment, for the post-merger performance and profitability of the present examined Greek acquiring listed firms.

**Table 4: Kruskal-Wallis test for domestic and international M&As**

<table>
<thead>
<tr>
<th>Code</th>
<th>Variable Name</th>
<th>Median</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>International</td>
<td>Domestic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V1</td>
<td>ROA - Return On total Assets (after taxes)</td>
<td>-0.06675</td>
<td>-0.0267</td>
<td>0.307</td>
<td></td>
</tr>
<tr>
<td>V2</td>
<td>ROE - Return to Owner’s Equity (after taxes)</td>
<td>-0.0336</td>
<td>-0.23955</td>
<td>0.117</td>
<td></td>
</tr>
</tbody>
</table>

Note: \(^{a, b, c}\) indicate that the median change is significantly different from zero at the 0.01, 0.05, and 0.10 probability level, respectively.
5. Summary and conclusions

One of the main elements of contemporary corporate restructuring is the formation of new business entities via M&As. Hence, except of the “well-explored” cases of the US and the UK capital markets, there were only a few of extensive researches on M&As in the majority of other countries globally, diachronically. For the case of Greece, there is a scarcity of post-merger economic performance studies with ratio analysis regarding firms involved in M&As activities, especially in the long run perspective and from an international orientation. The present study focuses on the latter issue and tries to obtain new insights on the subject.

In order to evaluate this phenomenon, this study tries to analyse the pre- and post-merger performance of a sample of seventy two Greek firms, listed in the Athens Stock Exchange (ASE) that executed one M&As action in a eight-year-period as acquirers during the period 1998-2005, with accounting data analysis from 1996 to 2007 (analysis for two years before and after the examined merger events). Using two essential financial profitability ratios (ROA; ROE), which had been firstly computed from firms’ accounting data, the study attempted to investigate the M&As effects on the post-merger economic performance of this sample.

In brief, this study revealed that there is no significant change of any examined variable at the post-merger performance of the Greek listed firms for the two examined profitability ratios. Thus, it is concluded that M&As events have not lead the merger-involved firms to enhanced economic profitability. Furthermore, this result for the Greek market, since there is no significant profitability improvement, do not support the hypothesis of market power (Lubatkin, 1983; 1987). According to this approach, the market power that was gained by the acquirer after the merger or the acquisition should increase the new firm’s profit margins and therefore, its profitability.

Also, a further data analysis of this study revealed clearly that there is no difference from the international orientation (domestic or international M&As) for the acquiring firms of the research sample at any of the two examined accounting ratio. Thus, the result of this study is not consistent with Hymer’s (1976) argument that the transactions of international M&As are considered for the acquiring firm as higher risk investments in a new environment, but also provide opportunities for higher profitability with the development of economies of scale at the hosting country of the investment, for the post-merger performance and profitability of the present examined Greek acquiring listed firms.

Future extensions of this study could examine the effects of the type of M&As transaction (domestic and international) to a larger sample that could include not only M&As-involved Greek firms listed in the ASE, but also non-listed firms and within other time periods.

References


