# The Post-Merger Performance of Acquiring Listed Firms among Different Industries in Greece

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***Abstract***
This study examines the effects of mergers and acquisitions (M&As) of acquiring firms in Greece among different industries using accounting data (financial ratios). The main objective of this paper is to evaluate the post-merger performance of Greek listed firms in the Athens Stock Exchange that executed as acquirers one merger or acquisition in a five-year-period (from 1998 to 2002) among seven different industry categories. For the purpose of the study, a set of twenty six ratios is employed, in order to measure thirty firms' post-merger performance per industry, as well as on the whole sample, and selected accounting data from 1994 to 2006 are compared for the post-merger performance of the sample firms at four years after the M&As events. The results revealed the post-merger performance of the acquiring firms was affected by their industry type. Also, M&As have not provided a better post-merger performance for the acquiring firms on the whole examined sample.

Keywords: mergers, acquisitions, financial ratios, accounting performance

JEL Classification: G34, M40

## Introduction

Presently, one of the main elements of contemporary corporate restructuring is the realisation of mergers and acquisitions (M&As). 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 increase 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 evolve an international perspective of M&As and an increasingly competitive business environment (Agorastos et al., 2006).

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 (Pazarskis & Alexandrakis, 2009). 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). However, many researchers and business practitioners regard with scepticism this hypothesis, despite the fact that many others are confident and enthusiastic.

In order to examine the success of merger decision in Greece, in general and among different industries, this study proceeds to an extensive accounting comparative analysis of the post-merger performance of a sample of thirty firms from different industry categories after their M&As activities, listed at the Athens Stock Exchange (ASE) in Greece, that executed one merger or acquisition in the period from 1998 to 2002, using selected accounting characteristics (financial ratios) from 1994 to 2006, and attempts to investigate the M&As' effects on their post-merger performance. The examined industry sectors are seven different industry categories: constructions, commerce, textiles, information technology, metals and metallic products, building materials and fixtures and holding companies.

Furthermore, in this study, the terms "merger" and "mergers and acquisitions (M&As)" are used in many cases at the text, providing similar meanings for the terms "merger" and "acquisition", while in others, wherever it is necessary, there is a clear distinction among them and always exists a provision of the exact meaning.

The structure of the paper is as follows: the next section analyses the research design of this study (related past researches with accounting data, sample and data, selection of variables-financial ratios, research methodology and hypothesis). The following section presents and analyses the results, and the last section concludes the paper.

## Research design

### Related past accounting researches

Several past studies on post-merger operating performance after M&As that employed accounting characteristics (financial ratios) concluded on ambiguous results (Pazarskis, 2008). Many of them supported an improvement in the operating performance after the M&As action (Cosh et al., 1980; Parrino et al., 1998; and others), while other researchers claimed that there was a deterioration in the post-merger firm performance (Meeks, 1977; Salter & Weinhold, 1979; Mueller, 1980; Kusewitt, 1985; Neely & Rochester, 1987; Ravenscraft & Scherer, 1987;

Dickerson et al., 1997; Sharma & Ho, 2002; and others), and others researchers concluded a "zero" result or ambiguous results from the M&As action (Kumar, 1984; Healy et al., 1992; Chatterjee & Meeks, 1996; Ghosh, 2001; Mantravadi & Reddy, 2008; and others).

**Methodology and selection of accounting variables**

The M&As action of each company from the sample is considered as an investment that is evaluated by the NPV criterion (if NPV≥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 over a specific period of time (Healy et al., 1992; Pazarskis, 2008).

For the purpose of the study, the selected financial ratios for each company of the sample over a four-year period before or after the M&As event are calculated (as it is shown on Figure 1), and the mean from the sum of each financial ratio for the years before is compared with the equivalent mean from the years after the M&As, respectively[1].

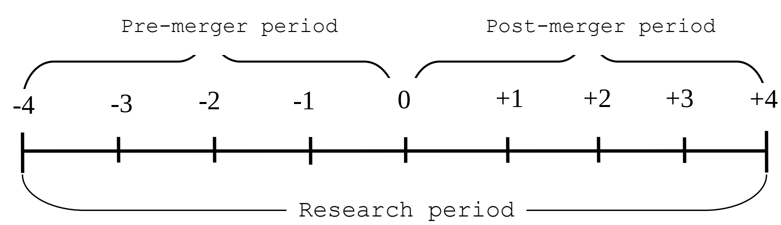


**Figure 1.** Accounting data period

Furthermore, the post-merger performance of a firm is evaluated with its operating performance at some financial ratios. In this study, twenty six financial ratios are employed, which are tabulated with their code and their calculation analysis at the Table 1. The financial ratios also are classified into five general groups (for an analytical review classification, see: Niarhos, 2002):

(i) *Liquidity ratios*, which measure the ability of a company to pay its debts in the short-term and to meet unexpected cash needs.
(ii) *Activity ratios*, which indicate the degree of assets' effective use.
(iii) *Profitability ratios*, which gauge a company's operating success over a given period of time.

[1] 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), 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. This argument is consistent with many other researchers diachronically (Philippatos et al., 1985; Neely & Rochester, 1987; Cornett & Tehnarian, 1992; Sharma & Ho, 2002; Pazarskis, 2008, Pramod Mantravadi & A. Vidyadhar Reddy, 2008; Pazarskis et al, 2010a;b; 2011a;b;c; and others).

(iv) *Financial structure and viability ratios*, which indicate a company's ability to meet long-term commitments on a continuing basis.
(v) *Investment ratios*, which provide several information among the share price of a company and net worth over a given period, dividends, or others assets.

However, there are many other approaches for accounting evaluation performance, different from the above. Return on investment (ROI) type of measures are considered as the most popular and the most frequently used when accounting variables are utilised to determine performance. But, in considering Kaplan's (1983) arguments against excessive use of ROI types of measurements, the above referred ratio selection of this study is confirmed as better, as:

> "…any single measurement will have myopic properties that will enable managers to increase their score on this measure without necessarily contributing to the long-run profits of the firm" (Kaplan, 1983, p. 699).

Thus, an adoption of additional and combined measures is believed to be necessary in order to provide a holistic view of the long-term profitability and performance of a firm, in accordance with the short-term one (Pazarskis, 2008).

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

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

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

Last, the study does not include in the comparisons the year of M&A 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).

**Sample**

The final "uncontaminated" sample consists of thirty 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 2002. The research sample is investigated, in the whole and per year, with accounting data analysis from 1994 to 2006 (analysis for four years before and after the examined merger events). The study consider only this final sample of thirty 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 examined industry sectors of these firms are seven different basic industry categories: constructions: 6 firms, commerce: 4 firms, textiles: 4 firms, information technology: 5 firms, metals and metallic products: 4 firms, building materials and fixtures: 3 firms and holding companies: 4 firms.

The final sample with thirty 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 within their industry category (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 sample firms, as: Cornett & Tehranian, 1992 : $n$ = 30, Healy et al., 1992 : $n$ = 50, Clark & Ofek, 1994 : $n$ = 38, Manson et al., 1995 : $n$ = 38, etc.

**Research methodology and hypotheses**

In this study the following hypotheses have been formulated:

*$H_1$: The post-merger performance of the acquiring firms is not expected to have a relative change after M&As.*
*$H_2$: The post-merger performance of the acquiring firms is not affected by industry type.*

**Data and data analysis**

***Data computation***

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 the firm post-merger performance. The accounting data of this study (financial ratios) are computed from the financial statements of the M&As-involved companies. Some other data, relevant to the share prices of the firms, were received from the databank of the University of Macedonia (Thessaloniki, Greece), that were later used for the computation of some specific financial ratios.

***Data analysis***

The study tries to investigate the evaluation of the post-merger performance for the sample firms from many sides in a particular way. Firstly, tries to find the final post-merger operating performance of the sample firms in general after a four-year-period, secondly, to reveal eventual changes among different industries.

***(i) Post-merger performance - all mergers***

The post-merger performance of the sample firms that executed M&As during the period 1998-2002 is evaluating for four years before and after the M&As event. The selected financial ratios for each company of the sample over a four-year period before (year T-4, T-3, T-2, T-1) or after (year T+1, T+2, T+3, T+4) the M&As event are calculated, and the mean from the sum of each financial ratio for the years T-4, T-3, T-2 and T-1 is compared with the equivalent mean from the years T+1, T+2, T+3 and T+4, respectively.

***(ii) Post-merger performance – among different industries***

The post-merger operating performance of the sample firms that executed an M&As transaction during the period 1998-2002 is evaluating for four years before and after the M&As event in similar process than the above among the following examined different industry categories: constructions, commerce, textiles, transport & communication services, financial services, building materials and fixtures and holding companies. The results are discussed in details for each industry category and in comparison among them depicturing the existence of eventual special peculiarities.

The results for each hypothesis separately, and by industry analysis, are presented in the following section.

## Analysis of results

### Post-Merger Performance of Acquiring Firms for All Industries

Considering the results from the evaluation of the relative change of each financial ratio (ratios from V01 to V26) of acquiring firms for all industries (see, Table 2), there is a decrease at nine ratios and an improvement only at three ratios out of twenty six. More analytically the results for each category are:

Regarding the first category (liquidity ratios: variables from V01 to V04, namely: current ratio, acid test ratio, cash ratio, working capital), the only variable that is affected by the M&As event is the variable V04 (working capital), which presents an improvement. However, this increase could be attributed to some extended liquidity level that was created from the action of unity by the merged firms, which could be also presumed as a liquidity unused surplus from current assets, even four years after the examined mergers.

The second category of ratios (activity ratios: variables from V05 to V11, namely: average receivables conversion period, average payables deferral period, average inventory conversion period, working capital turnover ratio, asset turnover ratio, fixed asset turnover ratio, owner’s equity turnover ratio), presents a decrease after the M&As transactions at three examined variables: (a) variable V05 (average receivables conversion period ratio), (b) variable V09 (asset turnover ratio), (c) variable V11 (owner’s equity turnover ratio), and an increase at two: (a) variable V06 (average payables deferral period ratio), (b) variable V07 (inventory conversion period ratio). But, from this referred analysis of the results, there is no clear evidence about a positive or a negative post-merger performance of the sample firms at the seven examined activity ratios.

Regarding the category of the profitability ratios (variables from V12 to V16, namely: gross profit margin, net profit margin (before taxes), net profit margin (after taxes), return on total assets - ROA (after taxes), return to owner's equity - ROE (after taxes)), there is a significant change of two examined variables: (a) variable V15 (return on total assets – ROA, after taxes), (b) variable V16 (return to owner's equity – ROE, after taxes). This high decrease of these two profitability ratios could be attributed to the inefficient unity of the merged firms. This result is not consistent with the results of some other past studies that have found a profitability improvement in the post-merger period: Cosh et al. (1980), Parrino et al. (1998), and others. But, it is also consistent with the results of some other past studies: 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 found Meeks (1977), Salter & Weinhold (1979), Mueller (1980), Kusewitt (1985), Mueller (1985), Dickerson et al. (1997), and others. Furthermore, these results for the Greek market, since there is no significant profitability improvement, do not support the hypotheses of market power (Lubatkin, 1983; 1987). According to this approach, market power that 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., 2011c).

The fourth category of ratios (financial structure and viability ratios: variables from V17 to V20, namely: ratio of owner's equity to total assets, ratio of owner's equity to total liabilities, ratio of owner's equity to fixed assets, net liabilities) present one change, since the only ratio affected from the M&As event, is the variable V17 (ratio of owner's equity to total assets), which presents a worsening. The owner's equity to total assets ratio is significantly less in the post-merger period on average. This indicates that as total assets increase logically after merger or acquisition, the equity base of the new company is lower (Pazarskis et al., 2010b).

Last, the fifth category of ratios (investment ratios: variables from V21 to V26, namely: earnings per share (EPS), dividends per share (DPS), dividend yield on equity capital, book value per share, price to book value (P/BV), price earnings ratio (P/E)) shows a decrease after the M&As transactions of the relative value of three variables: (a) variable V21 (earnings per share), (b) variable V23 (dividend yield on equity capital), and (c) variable V24 (book value per share). Based on previous literature, Hogarty (1978) and Sharma and Ho (2002) found also a decrease in the EPS ratio in the post-merger period for the US and the Australian market, respectively. Our results regarding this variable (EPS) are consistent with the above studies. This result implies that for these sample firms, at least, M&As activities do not lead to enhanced post-merger performance (Pazarskis et al., 2010b).

In conclusion, the hypothesis *H1* of this research is that: "*The post-merger performance of the acquiring firms is not expected to have a relative change after M&As*". So, as there is, in general, a worsening at the post-merger performance of all the acquiring firms, the above stated proposition of the hypothesis *H1* is rejected.

**Post-Merger Performance of Acquiring Firms among Different Industries**

***Post-Merger Performance of Acquiring Firms for Constructions Industry***

Considering the results from the evaluation of the relative change of each financial ratio (ratios from V01 to V26) of acquiring firms for constructions industry (see, Table 3), there is a decrease at fourteen ratios out of twenty six. More analytically the results for each category are:

Regarding the first category (liquidity ratios: variables from V01 to V04), there are three variables which affected by the M&As event: the variable V01 (current ratio), the variable V02 (acid test ratio), the variable V03 (cash ratio). All the three liquidity ratios of them present a worsening in the post-merger performance.

Concerning the second category of ratios (activity ratios: variables from V05 to V11), only one activity ratio presents a decrease after the M&As transactions: (a) variable V10 (fixed asset turnover ratio).

Regarding the category of the profitability ratios (variables from V12 to V16), there is a significant change of three examined variables: (a) variable V13 (net profit margin-before taxes), (b) variable V14 (net profit margin-after taxes), (c) variable V15 (return on total assets / ROA -after taxes), which presents a decrease.

The fourth category of ratios (financial structure and viability ratios: variables from V17 to V20) presents a general worsening at all examined variables: variable V17 (ratio of owner's equity to total assets), variable V18 (ratio of owner's equity to total liabilities), variable V19 (ratio of owner's equity to fixed assets), variable V20 (net liabilities).

Finally, the fifth category of ratios (investment ratios: variables from V21 to V26) shows a decrease after the M&As transactions of the relative value of three variables: (a) variable V21 (earnings per share), (b) variable V23 (dividend yield on equity capital), and (c) variable V25 (price to book value - P/BV).

So, it is clear from the above findings that there is a worsening for the acquiring firms from constructions industry at their post-merger performance.

***Post-Merger Performance of Acquiring Firms for Commerce Industry***

Considering the results from the evaluation of the relative change of each financial ratio (ratios from V01 to V26) of acquiring firms for commerce industry (see, Table 4), there is a decrease at four ratios and an increase at two out of twenty six. More analytically the results for each category are:

Regarding the first category (liquidity ratios: variables from V01 to V04), there is one variable, which is affected by the M&As event and presents an increase: variable V04 (working capital).

At the second category of ratios (activity ratios: variables from V05 to V11), only one activity ratio presents a decrease after the M&As transactions: variable V06 (average payables deferral period ratio) and one an increase: variable V07 (average inventory conversion period ratio).

Considering the category of the profitability ratios (variables from V12 to V16), there is a significant change of one examined variables, the variable V15 (return on total assets / ROA -after taxes), which presents a worsening.

Regarding the fourth category of ratios (financial structure and viability ratios: variables from V17 to V20) there is a decrease at one examined variable: variable V20 (net liabilities).

Finally, the fifth category of ratios (investment ratios: variables from V21 to V26) shows a decrease after the M&As transactions of the relative value of one variable: the variable V25 (price to book value - P/BV).

All-in-all, it is clear from the above findings that there is, in general, a worsening for the acquiring firms from commerce industry at their post-merger performance.

***Post-Merger Performance of Acquiring Firms for Textiles Industry***

Considering the results from the evaluation of the relative change of each financial ratio (ratios from V01 to V26) of acquiring firms for commerce industry (see, Table 5), there is a decrease at ten ratios and an increase at only one out of twenty six. More analytically the results for each category are:

Regarding the first category (liquidity ratios: variables from V01 to V04), there is one variable which affected by the M&As event and presents an increase: variable V04 (working capital).

Considering the category of ratios (activity ratios: variables from V05 to V11), three activity ratios present a decrease after the M&As transactions: variable V09 (asset turnover ratio), variable V10 (fixed asset turnover ratio), variable V11 (owner's equity turnover ratio).

Regarding the third category of the profitability ratios (variables from V12 to V16), there is a decrease of four examined variables: variable V13 (net profit margin-before taxes), variable V14 (net profit margin-after taxes), variable V15 (return on total assets / ROA -after taxes), variable V16 (return on equity / ROE -after taxes).

At the fourth category of ratios (financial structure and viability ratios) there is no significant change at any examined variable.

Finally, the fifth category of ratios (investment ratios: variables from V21 to V26) shows a decrease after the M&As transactions a the relative value of three variables: (a) variable V21 (earnings per share), (b) variable V23 (dividend yield on equity capital), and (c) variable V25 (price to book value - P/BV).

Thus, it is clear from the above findings that there is a worsening for the acquiring firms from textile industry at their post-merger performance.

***Post-Merger Performance of Acquiring Firms for Information Technology Industry***

Considering the results from the evaluation of the relative change of each financial ratio (ratios from V01 to V26) of acquiring firms for information technology industry (see, Table 6), there is a decrease at eleven ratios and an increase at three out of twenty six. More analytically the results for each category are:

Regarding the first category (liquidity ratios: variables from V01 to V04), there is one variable which affected by the M&As event and presents an increase: variable V04 (working capital).

At the second category of ratios (activity ratios: variables from V05 to V11), four activity ratios present a decrease after the M&As transactions: variable V05 (average receivables conversion period ratio), variable V09 (asset turnover ratio), variable V10 (fixed asset turnover ratio), variable V11 (owner's equity turnover ratio), and only one an increase: variable V06 (average payables deferral period ratio).

Regarding the third category of the profitability ratios (variables from V12 to V16), there is a significant change of four examined variables: variable V13 (net profit margin-before taxes), variable V14 (net profit margin-after taxes), variable V15 (return on total assets / ROA -after taxes), variable V16 (return on equity / ROE -after taxes).

Considering the fourth category of ratios (financial structure and viability ratios: variables from V17 to V20) one examined variable presents a worsening: variable V17 (ratio of owner's equity to total assets).

Finally, the fifth category of ratios (investment ratios: variables from V21 to V26) shows a decrease after the M&As transactions of the relative value of three variables: (a) variable V21 (earnings per share), (b) variable V23 (dividend yield on equity capital), and (c) variable V24 (book value per share).

All-in-all, it is clear from the above findings that there is a worsening for the acquiring firms from information technology industry at their post-merger performance.

***Post-Merger Performance of Acquiring Firms for Metals and Metallic Products Industry***

Considering the results from the evaluation of the relative change of each financial ratio (ratios from V01 to V26) of acquiring firms for metals and metallic products industry (see, Table 7), there is a decrease at three ratios and an increase at two out of twenty six. More analytically the results for each category are:

Regarding the first category (liquidity ratios: variables from V01 to V04), there is no significant change at any examined variable.

At the second category of ratios (activity ratios: variables from V05 to V11), one activity ratio presents an increase after the M&As transactions: variable V07 (average inventory conversion period ratio).

At the third category of the profitability ratios (variables from V12 to V16), there is a significant change of one examined variables: variable V14 (net profit margin-after taxes), which presents an increase.

Considering the fourth category of ratios (financial structure and viability ratios: variables from V17 to V20) one variable presents a worsening of one examined variable: variable V17 (ratio of owner’s equity to total assets).

Finally, the fifth category of ratios (investment ratios: variables from V21 to V26) shows a decrease after the M&As transactions at the relative value of one variable: variable V23 (dividend yield on equity capital).

So, it is clear from the above findings that there is no clear evidence for an enhanced post-merger performance of acquiring firms from metals and metallic products industry after M&As.

***Post-Merger Performance of Acquiring Firms for Building Materials and Fixtures Industry***

Considering the results from the evaluation of the relative change of each financial ratio (ratios from V01 to V26) of acquiring firms for building materials and fixtures industry (see, Table 8), there is a slight decrease at three ratios and an increase at two out of twenty six. More analytically the results for each category are:

At the first category (liquidity ratios: variables from V01 to V04), there is no variable affected by the M&As events.

Regarding the second category of ratios (activity ratios: variables from V05 to V11), one activity ratio presents an increase after the M&As transactions: variable V07 (average inventory conversion period ratio).

Considering the third category of the profitability ratios (variables from V12 to V16), there is a significant change of one examined variables: variable V13 (net profit margin-before taxes), which presents a worsening.

At the fourth category of ratios (financial structure and viability ratios: variables from V17 to V20) there is a worsening of one examined variable: variable V17 (ratio of owner's equity to total assets).

Finally, the fifth category of ratios (investment ratios: variables from V21 to V26) shows a decrease after the M&As transactions at the relative value of two variables, at the variable V25 (price to book value - P/BV) and the variable V26 (price earnings ratio - P/E).

To sum up, it is clear from the above findings that there is no clear evidence for an enhanced post-merger performance of acquiring firms from building materials and fixtures industry after their M&As.

***Post-Merger Performance of Acquiring Firms for Holding Companies***

Considering the results from the evaluation of the relative change of each financial ratio (ratios from V01 to V26) of acquiring firms for holding companies (see, Table 9), there is a decrease at six ratios and an increase at six out of twenty six. More analytically the results for each category are:

Regarding the first category (liquidity ratios: variables from V01 to V04), there is no significant change at any examined variable.

Considering the second category of ratios (activity ratios: variables from V05 to V11), two activity ratios present an increase after the M&As transactions: variable V07 (average inventory conversion period ratio), variable V08 (working capital turnover ratio) and three a decrease: variable V09 (average inventory conversion period ratio), variable V10 (fixed asset turnover ratio), variable V11 (owner's equity turnover ratio).

At the third category of the profitability ratios (variables from V12 to V16), there is a significant change of one examined variables: variable V14 (net profit margin-after taxes), which presents an increase, but there is also a decrease at two variables: variable V15 (return on total assets / ROA -after taxes), variable V16 (return on equity / ROE -after taxes).

Regarding the fourth category of ratios (financial structure and viability ratios: variables from V17 to V20) one examined variable presents an increase: variable V18 (ratio of owner's equity to total liabilities).

Last, at the fifth category of ratios (investment ratios: variables from V21 to V26) there is a decrease after the M&As transactions at the relative value of one variable: variable V21 (Earnings per share – EPS) and an increase of two: variable V23 (dividend yield on equity capital) and variable V26 (price earnings ratio - P/E).

Thus, it is clear from the above ambiguous findings that there is no clear evidence for the post-merger performance of acquiring holding companies after their M&As.

To sum up, the hypothesis $H_2$ of this research is that: "*The post-merger performance of the acquiring firms is not affected by industry type*". So, as there are, in general, different results at the post-merger performance for the examined acquiring firms of each industry, the above stated proposition of the hypothesis $H_2$ is rejected.

## Summary and conclusions

One of the main elements of contemporary corporate restructuring, with a universal acceptance, is the formation of new business entities via mergers and acquisitions (M&As). This study examines the success of merger decision of acquiring firms in Greece among different industries using accounting data (financial ratios) after four years of their M&As transactions.

In order to examine the post-merger performance, among different industries and in general, this study proceeds to an extensive accounting comparative analysis of the post-merger performance of a sample of thirty firms from different industry categories, listed at the Athens Stock Exchange (ASE) in Greece, that executed one merger or acquisition in the period from 1998 to 2002, using twenty six selected accounting characteristics (financial ratios) from 1994 to 2006, and attempts to investigate the M&As' effects on their post-merger performance.

The examined industry sectors are seven different industry categories: constructions, commerce, textiles, information technology, metals & metallic products, building materials & fixtures, holding companies. Also, this research examines with its hypotheses: (i) if the post-merger performance of the acquiring firms is not expected to have a relative change after M&As, and (ii) if the post-merger performance of the acquiring firms is not affected by industry type.

The results revealed for the examined firms of each industry different results per industry and that there is after their M&As, in general, a worsening at the post-merger performance. From this could be presumed that their post-merger performance was affected by their different industry type. Also, M&As have not provided a better post-merger performance for the acquiring firms on the whole examined sample.

Last, future extensions of this study could examine a larger sample that could include not only M&As-involved Greek firms listed in the Athens Exchange, but also non-listed firms and within other or larger time frame periods.

## References

Agorastos, K., Zarotiadis, G. and Pazarskis, M. (2006) "International Mergers and Acquisitions of Greek Business in South-Eastern European

Countries, an Empirical Study", in: "*Festschrift in honour of Maria Negroponti-Delivani*", University of Macedonia, Greece, pp. 9-35
Chatterjee, S. and Meeks, G. (1996) "The Financial Effects of Takeover: Accounting Rates of Return and Accounting Regulation", *Journal of Business Finance & Accounting*, **23**, pp. 851-868
Clark, K. and Ofek, E. (1994) "Mergers as a Means of Restructuring Distressed Firms: An Empirical Investigation", *Journal of Financial and Qualitative Analysis*, **29**(4), pp. 541-565
Cornett, M. and Tehnarian, H. (1992) "Changes in Corporate Performance Associated with Bank Acquisitions", *Journal of Financial Economics*, 31, pp. 211-234
Cosh, A., Hughes, A. and Singh, A. (1980) "The Causes and Effects of Takeovers in the U.K.: An Empirical Investigation for the late 1960s at the Microeconomic Level", in D. Mueller, eds., "*The Determinants and Effects of Merger: An International Comparison*", Gunn & Horn Publications, Cambridge, U.K.
Dickerson, A., Gibson, H. and Tsakalotos, E. (1997) "The Impact of Acquisitions on Company Performance: Evidence from a Large Panel of U.K. Firms," *Oxford Economic Papers*, **49**, pp. 344-361
Ghosh, A., (2001) "Does Operating Performance Really Improve Following Corporate Acquisitions?", *Journal of Corporate Finance*, 7, pp. 151-178.
Healy, P., Palepu, K. and Ruback, R. (1992) "Does Corporate Performance Improve After Mergers?", *Journal of Financial Economics*, **31**, pp. 135-175
Kaplan, S. (1983) "Measuring Manufacturing Performance: A Challenge for Managerial Accounting Research", *Accounting Review*, **58**, pp. 686-705
Kumar, M. (1984) "Growth, Acquisition and Investment", Cambridge University Press, Cambridge, U.K.
Kusewitt, J. (1985) "An Explanatory Study of Strategic Acquisition Factors Relating to Performance", *Strategic Management Journal*, **6**, pp. 151-169
Lubatkin, M. (1983) "Merger and the Performance of the Acquiring Firm", *Academic of Management Review*, **8**, pp. 218-225
Lubatkin, M. (1987) "Merger Strategies and Stockholder Value", *Strategic Management Journal*, **8**, pp. 39-53
Manson, S., Stark, A. and Thomas, H. (1995) "*A Cash Flow Analysis of Operational Gains from Takeovers*", Certified Research Report 35, The Chartered Association of Certified Accountants, London, UK.
Meeks, G. (1977) "Disappointing Marriage: A Study of the Gains from Merger", *University of Cambridge: Occasional Paper 51*, Cambridge University Press, Cambridge, U.K.
Mueller, D. (1980) "*The Determinants and Effects of Merger: An International Comparison*", Gunn & Horn Publications, Cambridge, U.K.
Mueller, D. (1985) "Mergers and Market Share," *Review of Economics and Statistics*, **67**, pp. 259-267
Neely, W. and Rochester, D. (1987) "Operating Performance and Merger Benefits: The Savings and Loans Experience", *Financial Review*, **22**, pp. 111-129
Niarhos, N. (2002) "*Financial Analysis of Accounting Statements*" (in Greek), 6th Edition, Stamoulis Editions, Athens, Greece.
Parrino, R., Boebel, R. and Harris, R. (1998) "The Effects of Taxation on FDI: Evidence from U.S., U.K. and Canadian Acquisitions of U.S. Firms", *University of Virginia Working Paper*, Virginia, U.S.

Philippatos, G., Choi, D. and Dowling, W. (1985) "Effects of Mergers on Operational Efficiency: A Study of the S&L Industry in Transition", *Northeast Journal of Business & Economics*, **11**, pp. 1-14
Pramod Mantravadi and A. Vidyadhar Reddy (2008) "Post-Merger Performance of Acquiring Firms from Different Industries in India", *International Research Journal of Finance and Economics,* **3**(22), pp. 192-204
Pazarskis, M. (2008) "*Exploration of Mergers and Acquisitions of Greek Firms with the Application of Statistical Methods*" (in Greek), Ph.D. Thesis, University of Macedonia, Thessaloniki, Greece
Pazarskis, M. and Alexandrakis, A. (2009) "Evaluating Post-Merger Performance of Greek Firms: A Theoretical Financial Accounting Perspective", *International Journal of Business Management, Economics and Information Technology*, **1**(2), pp. 135-148
Pazarskis, M., Alexandrakis, A. and Mantzaris, I. (2010a) "Corporate Mergers and Acquisitions, Classification of their Motives and the Theory of the Firm", *PRIME*, **3**(1), pp. 67-82
Pazarskis, M., Karagiorgos, T., Eleftheriadis, I. and Christodoulou, P. (2010b) "The Post-Merger Performance of Greek Acquiring Listed Firms: An Accounting Analysis", *MIBES Transactions*, **4**(1), pp. 96-107
Pazarskis, M., Alexandrakis, A., Notopoulos, P. and Kydros, D. (2011a) "Are Acquiring Firms Better Off after an Acquisition? Evidence from a Knowledge-Intensive Industry in Greece", *International Research Journal of Applied Finance*, **2**(7), pp. 844-852
Pazarskis, M., Lyroudi, K., Pantelidis, P. and Christodoulou, P. (2011b) "An Accounting Examination of the Long Run Performance of Greek Acquiring Firms", *International Journal of Financial Services Management*, **5**(2), pp. 159-176
Pazarskis, M., Alexandrakis, A. and Karagiorgos, T. (2011c) "International M&As of Greek Listed Firms at South-East Europe: Effects on their Accounting Performance", *MIBES Transactions*, **5**(1), pp. 105-120
Ravencraft, D. and Scherer, F. (1987) "*Mergers, Sell-Offs and Economic Efficiency*", Brookings Institution, Washington, U.S.
Salter, M and Weinhold, W. (1979) "*Diversification Through Acquisition; Strategies for Creating Economic Value*", Free Press, New York, U.S.
Sharma, D. and Ho, J. (2002) "The Impact of Acquisitions on Operating Performance: Some Australian Evidence", *Journal of Business Finance & Accounting*, **29**, pp. 155-200.

## List of Tables

### Table 1: Classification of financial ratios

The post-merger performance of a firm is evaluated with its operating performance at several financial ratios. In order to provide a holistic view of the long-term profitability and performance of firms, in accordance with the short-term one, this study employs twenty six financial ratios, which are tabulated with their code and their calculation analysis at the following table. The ratios are classified into five general groups (see: Niarhos, 2002): liquidity ratios, activity ratios, profitability ratios, financial structure and viability ratios, investment ratios.

| *Class* | *Code* | *Variable Name* |
|---|---|---|
| Liquidity ratios | V01 | Current ratio |
| | V02 | Acid test ratio |
| | V03 | Cash ratio |

| | | |
|---|---|---|
| | V04 | Working capital |
| Activity ratios | V05 | Average receivables conversion period |
| | V06 | Average payables deferral period |
| | V07 | Average inventory conversion period |
| | V08 | Working capital turnover ratio |
| | V09 | Asset turnover ratio |
| | V10 | Fixed asset turnover ratio |
| | V11 | Owner's equity turnover ratio |
| Profitability ratios | V12 | Gross profit margin |
| | V13 | Net profit margin (before taxes) |
| | V14 | Net profit margin (after taxes) |
| | V15 | Return On total Assets - ROA (after taxes) |
| | V16 | Return to Owner's Equity - ROE (after taxes) |
| Financial structure and viability ratios | V17 | Ratio of owner's equity to total assets |
| | V18 | Ratio of owner's equity to total liabilities |
| | V19 | Ratio of owner's equity to fixed assets |
| | V20 | Net liabilities (= Total liabilities - Cash and Equivalents) |
| Investment ratios | V21 | Earnings per share - EPS |
| | V22 | Dividends per share - DPS |
| | V23 | Dividend yield on equity capital |
| | V24 | Book value per share |
| | V25 | Price to book value - P/BV |
| | V26 | Price earnings ratio - P/E |

**Table 2: Mean Pre-merger and Post-merger Ratios of Acquiring Firms for All Industries**

Table values are the mean computed for each ratio for the research sample of 30 M&As of Greek listed firms. The ratio mean computed in the pre-merger period of 4 years avg. represents the mean ratio of the fourth (*T*-4), third (*T*-3), second (*T*-2) & first year (*T*-1) before the M&As event. The year 0 (*T*=0) is omitted, because this usually includes a number of events which influence firm's performance in this period, as one-time M&As transaction costs, necessary for the deal, etc. The ratio mean computed in the post-merger period of 4 years avg. represents the mean ratio of the first (*T*+1), second (*T*+2), third (*T*+3) & fourth year (*T*+4) after the M&As event.

| *Class* | *Variable* | *Pre-Merger (4 years avg.)* | *Post-Merger (4 years avg.)* | *T-statistic (Two-tail)* | *P-Value* | *Confidence Interval 95%* |
|---|---|---|---|---|---|---|
| Liquidity ratios | V01 | 1,618 | 1,685 | 0,84 | 0,404 | (-0,318; 0,786) |
| | V02 | 1,26 | 1,53 | 0,97 | 0,334 | (-0,28; 0,818) |
| | V03 | 7,2 | 9,0 | 0,45 | 0,656 | (-6,18; 9,78) |
| | V04 | 11,31 | 39,47 | 2,27 | 0,025** | (3,643; 52,68) |
| Activity ratios | V05 | 244 | 544 | 2,17 | 0,032** | (26; 575) |
| | V06 | 222 | 352 | 2,11 | 0,037** | (8,3; 253,1) |
| | V07 | 68 | 55 | -1,69 | 0,093* | (-28,26; 2,2) |
| | V08 | 3,4 | 4,8 | 0,46 | 0, 645 | (-4,41; 7,1) |
| | V09 | 0,769 | 0,564 | -3,43 | 0,001*** | (-0,322; -0,087) |
| | V10 | 4,26 | 7,6 | 0,51 | 0,611 | (-9,53; 16,13) |
| | V11 | 2,95 | 1,35 | -2,55 | 0,012** | (-2,83; -0,35) |
| Profitability ratios | V12 | 22,54 | 18,9 | -1,15 | 0,253 | (-9,93; 2,64) |
| | V13 | 13,7 | 7,6 | -0,76 | 0,447 | (-21,79; 9,67) |
| | V14 | 9,34 | 8,1 | -0,16 | 0,875 | (-16,4; 14,03) |
| | V15 | 5,91 | 2,88 | -3,81 | 0,000*** | (-4,60; -1,46) |
| | V16 | 14,4 | 3,1 | -3,14 | 0,002*** | (-18,5; -4,22) |
| Financial structure & viability ratios | V17 | 53,5 | 32,9 | -6,09 | 0,000*** | (-27,3; -13,9) |
| | V18 | 1,7 | 1,55 | -0,63 | 0,529 | (-0,614; 0,31) |
| | V19 | 2,94 | 3,17 | 0,29 | 0,773 | (-1,37; 1,840) |
| | V20 | 49,87 | 78,0 | 1,59 | 0,114 | (-6,805; 63,05) |
| Investment ratios | V21 | 2,2 | 0,241 | -2,83 | 0,005*** | (-3,33; -0,58) |
| | V22 | 1,09 | 1,7 | 0,46 | 0,650 | (-2,14; 3,41) |
| | V23 | 6,9 | 0,95 | -4,09 | 0,000*** | (-8,84; -3,07) |
| | V24 | 7,6 | 3,12 | -2,46 | 0,016** | (-8,15; -0,87) |

| | | | | | | |
|---|---|---|---|---|---|---|
| | V25 | 6,9 | 6,4 | -0,10 | 0,923 | (-10,35; 9,38) |
| | V26 | 59 | 44 | -0,43 | 0,670 | (-85,4; 55,1) |

*Notes:* 1. ***, **, * 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, ***)
0.01≤p<0.05 moderate evidence against Ho (see, **)
0.05≤p<0.10 little evidence against Ho (see, *)
0.10≤p no real evidence against Ho
2. At variable V04 and V20, the amounts are in millions euro.

**Table 3: Mean Pre-merger and Post-merger Ratios of Acquiring Firms for Constructions Industry**

Table values are the mean computed for each ratio for the research sample of six M&As of Greek listed firms for the Constructions Industry. The ratio mean computed in the pre-merger period of 4 years avg. represents the mean ratio of the fourth (*T*-4), third (*T*-3), second (*T*-2) & first year (*T*-1) before the M&As event. The year 0 (*T*=0) is omitted, because this usually includes a number of events which influence firm's performance in this period, as one-time M&As transaction costs, necessary for the deal, etc. The ratio mean computed in the post-merger period of 4 years avg. represents the mean ratio of the first (*T*+1), second (*T*+2), third (*T*+3) & fourth year (*T*+4) after the M&As event.

| *Class* | *Variable* | *Pre-Merger (4 years avg.)* | *Post-Merger (4 years avg.)* | *T-statistic (Two-tail)* | *P-Value* | *Confidence Interval 95%* |
|---|---|---|---|---|---|---|
| Liquidity ratios | V01 | 2,24 | 1,283 | -3,86 | 0,001*** | (-1,46; -0,44) |
| | V02 | 2,0 | 1,099 | -3,71 | 0,001*** | (-1,40; -0,4) |
| | V03 | 8,4 | 2,65 | -2,35 | 0,026** | (-10,7; -0,75) |
| | V04 | 23,503 | 10,984 | -1,24 | 0,223 | (-32,951; 7,913) |
| Activity ratios | V05 | 473 | 481 | 0,06 | 0,953 | (-282; 299) |
| | V06 | 247 | 765 | 1,99 | 0,060* | (-24; 1060) |
| | V07 | 60,4 | 90 | 1,21 | 0,233 | (-20; 79,3) |
| | V08 | 1,89 | 7,8 | -1,45 | 0,157 | (-14,17; 2,4) |
| | V09 | 0,508 | 0,368 | -1,43 | 0,164 | (-0,3394; 0,06) |
| | V10 | 2,29 | 1,283 | -2,29 | 0,030** | (-1,90; -0,10) |
| | V11 | 0,813 | 0,967 | 0,62 | 0,537 | (-0,344; 0,65) |
| Profitability ratios | V12 | 16,81 | -0,3 | -1,27 | 0,219 | (-45; 10,9) |
| | V13 | 21,5 | -25 | -1,98 | 0,062* | (-95,4; 2,6) |
| | V14 | 13,1 | -26 | -1,75 | 0,095* | (-85,4; 7,4) |
| | V15 | 5,81 | -1,97 | -3,36 | 0,002*** | (-12,5; -3,05) |
| | V16 | 8,57 | -6,5 | -1,04 | 0,308 | (-44,9; 14,9) |
| Financial structure & viability ratios | V17 | 71,9 | 25,4 | -6,98 | 0,000*** | (-60,1; -32,8) |
| | V18 | 3,2 | 0,886 | -5,90 | 0,000*** | (-3,10; -1,51) |
| | V19 | 3,76 | 1,63 | -3,65 | 0,001*** | (-3,30; -0,95) |
| | V20 | 18,93 | 76,995 | 4,07 | 0,000*** | (28,528; 87,601) |
| Investment ratios | V21 | 0,258 | 0,015 | -4,20 | 0,000*** | (-0,35; -0,12) |
| | V22 | 0,1296 | 0,115 | -0,14 | 0,887 | (-0,22; 0,195) |
| | V23 | 4,53 | 0,16 | -5,35 | 0,000*** | (-6,03; -2,68) |
| | V24 | 3,23 | 2,48 | -1,60 | 0,118 | (-1,688; 0,19) |
| | V25 | 3,94 | 0,933 | -2,81 | 0,011** | (-5,25; -0,76) |
| | V26 | 15,6 | 7,5 | -1,48 | 0,153 | (-19,42; 3,24) |

*Notes:* 1. ***, **, * indicate that the means are significantly different from zero at the 0.01, 0.05, and 0.10 probability level, respectively, as above at Table 2.
2. At variable V04 and V20, the amounts are in millions euro.

**Table 4: Mean Pre-merger and Post-merger Ratios of Acquiring Firms for Commerce Industry**

Table values are the mean computed for each ratio for the research sample of four M&As of Greek listed firms for the Commerce Industry. The ratio mean computed in the pre-merger period of 4 years avg. represents the mean ratio of the fourth (*T*-4), third (*T*-3), second (*T*-2) & first year (*T*-1) before the M&As event. The year 0 (*T*=0) is omitted, because this usually includes a number of events which influence firm's performance in this period, as one-time M&As transaction costs, necessary for the deal, etc. The ratio mean computed in the post-merger period of 4 years avg. represents the mean ratio of the first (*T*+1), second (*T*+2), third (*T*+3) & fourth year (*T*+4) after the M&As event.

| *Class* | *Variable* | *Pre-Merger (4 years avg.)* | *Post-Merger (4 years avg.)* | *T-statistic (Two-tail)* | *P-Value* | *Confidence Interval 95%* |
|---|---|---|---|---|---|---|
| Liquidity ratios | V01 | 1,429 | 1,72 | 0,91 | 0,371 | (-0,36; 0,94) |
| | V02 | 1,056 | 1,243 | 0,79 | 0,435 | (-0,29; 0,67) |
| | V03 | 4,0 | 0,60 | -1,17 | 0,261 | (-9,5; 2,78) |
| | V04 | 1,37 | 14,874 | 2,33 | 0,029** | (1,49; 25) |
| Activity ratios | V05 | 200,3 | 168,6 | -0,98 | 0,337 | (-98; 34,9) |
| | V06 | 210,7 | 159,4 | -1,72 | 0,096* | (-112,3; 9,8) |
| | V07 | 74,3 | 40,8 | -2,91 | 0,009*** | (-57,6; -9,4) |
| | V08 | -1,4 | 1,4 | 0,36 | 0,723 | (-13,31; 18,92) |
| | V09 | 1,052 | 1,098 | 0,22 | 0,831 | (-0,395; 0,488) |
| | V10 | 6,91 | 48 | 0,95 | 0,355 | (-51,3; 134,3) |
| | V11 | 9,1 | 3,17 | -1,52 | 0,152 | (-14,44; 2,48) |
| Profitability ratios | V12 | 23,75 | 20,1 | -1,10 | 0,282 | (-10,49; 3,20) |
| | V13 | 4,59 | 1,39 | -3,77 | 0,001*** | (-4,955; -1,44) |
| | V14 | 1,92 | 2,06 | 0,10 | 0,920 | (-2,83; 3,12) |
| | V15 | 2,35 | 2,13 | -0,22 | 0,832 | (-2,37; 1,92) |
| | V16 | 25 | 3,65 | -1,68 | 0,117 | (-48,9; 6,1) |
| Financial structure & viability ratios | V17 | 36,9 | 23,8 | -1,60 | 0,122 | (-29,83; 3,71) |
| | V18 | 0,745 | 0,785 | 0,25 | 0,805 | (-0,292; 0,372) |
| | V19 | 3,12 | 2,02 | -1,23 | 0,235 | (-2,998; 0,787) |
| | V20 | 22,52 | 54,25 | 1,79 | 0,092* | (-5,849; 69,32) |
| Investment ratios | V21 | 7,0 | 0,131 | -1,51 | 0,154 | (-16,67; 2,93) |
| | V22 | 5,5 | 0,46 | -1,53 | 0,150 | (-12,20; 2,09) |
| | V23 | 17,2 | 0, 57 | -1,70 | 0,111 | (-37,64; 4,34) |
| | V24 | 12,5 | 3,24 | -1,50 | 0,157 | (-22,48; 4,05) |
| | V25 | 7,2 | 1,163 | -2,04 | 0,060* | (-12,36; 0,30) |
| | V26 | 27,3 | 121 | 0,89 | 0,390 | (-134; 322) |

*Notes:* 1. ***, **, * indicate that the means are significantly different from zero at the 0.01, 0.05, and 0.10 probability level, respectively, as above at Table 2.
2. At variable V04 and V20, the amounts are in millions euro.

**Table 5: Mean Pre-merger and Post-merger Ratios of Acquiring Firms for Textiles Industry**

Table values are the mean computed for each ratio for the research sample of four M&As of Greek listed firms for the Textiles Industry. The ratio mean computed in the pre-merger period of 4 years avg. represents the mean ratio of the fourth (*T*-4), third (*T*-3), second (*T*-2) & first year (*T*-1) before the M&As event. The year 0 (*T*=0) is omitted, because this usually includes a number of events which influence firm's performance in this period, as one-time M&As transaction costs, necessary for the deal, etc. The ratio mean computed in the post-merger period of 4 years avg. represents the mean ratio of the first (*T*+1), second (*T*+2), third (*T*+3) & fourth year (*T*+4) after the M&As event.

| *Class* | *Variable* | *Pre-Merger* | *Post-Merger* | *T-statistic* | *P-Value* | *Confidence* |
|---|---|---|---|---|---|---|

| | | *(4 years avg.)* | *(4 years avg.)* | *(Two-tail)* | | *Interval 95%* |
|---|---|---|---|---|---|---|
| Liquidity ratios | V01 | 1,828 | 1,728 | -0,41 | 0,687 | (-0,609; 0,409) |
| | V02 | 1,160 | 1,050 | -0,71 | 0,488 | (-0,434; 0,214) |
| | V03 | 0,58 | 3,63 | 2,69 | 0,014** | (0,68; 5,41) |
| | V04 | 7,327 | 12,24 | 1,26 | 0,220 | (-3,112; 12,94) |
| Activity ratios | V05 | 162,4 | 204 | 1,27 | 0,222 | (-27,6; 111,0) |
| | V06 | 174,7 | 199,5 | 0,81 | 0,426 | (-38,0; 87,6) |
| | V07 | 94,5 | 101,7 | 0,36 | 0,724 | (-35,1; 49,6) |
| | V08 | 6,42 | 1,7 | -1,17 | 0,252 | (-13,0; 3,57) |
| | V09 | 0,884 | 0,602 | -4,46 | 0,000*** | (-0,412; -0,153) |
| | V10 | 3,26 | 1,93 | -2,68 | 0,013** | (-2,346; -0,307) |
| | V11 | 1,831 | 1,112 | -3,72 | 0,001*** | (-1,121; -0,317) |
| Profitability ratios | V12 | 19,06 | 18 | -0,30 | 0, 768 | (-8,07; 6,02) |
| | V13 | 9,83 | 3,89 | -2,36 | 0,028** | (-11,18; -0,70) |
| | V14 | 7,21 | 3,07 | -1,88 | 0,075* | (-8,75; 0,46) |
| | V15 | 5,37 | 2,41 | -2,50 | 0,018** | (-5,38; -0,53) |
| | V16 | 13,52 | 3,01 | -3,67 | 0,001*** | (-16,42; -4,59) |
| Financial structure & viability ratios | V17 | 53,5 | 44,6 | -1,25 | 0,222 | (-23,35; 5,66) |
| | V18 | 1,6 | 1,053 | -1,38 | 0,181 | (-1,361; 0,275) |
| | V19 | 1,884 | 2,0 | 0,24 | 0,815 | (-0,867; 1,09) |
| | V20 | 11,4 | 17,56 | 0,97 | 0,345 | (-7,25; 19,59) |
| Investment ratios | V21 | 4,39 | 0,073 | -1,82 | 0,093* | (-9,48; 0,85) |
| | V22 | 0,82 | 0,33 | -0,96 | 0,350 | (-1,539; 0,569) |
| | V23 | 4,6 | 0,78 | -3,11 | 0,007*** | (-6,45; -1,21) |
| | V24 | 2,28 | 2,71 | 0,81 | 0,426 | (-0,669; 1,538) |
| | V25 | 3,11 | 1,216 | -3,03 | 0,007*** | (-3,198; -0,58) |
| | V26 | 19 | 11,2 | -0,88 | 0,386 | (-25,99; 10,42) |

*Notes:* 1. ***, **, * indicate that the means are significantly different from zero at the 0.01, 0.05, and 0.10 probability level, respectively, as above at Table 2.
2. At variable V04 and V20, the amounts are in millions euro.

**Table 6: Mean Pre-merger and Post-merger Ratios of Acquiring Firms for Information Technology Industry**

Table values are the mean computed for each ratio for the research sample of five M&As of Greek listed firms for the Information Technology Industry. The ratio mean computed in the pre-merger period of 4 years avg. represents the mean ratio of the fourth (*T*-4), third (*T*-3), second (*T*-2) & first year (*T*-1) before the M&As event. The year 0 (*T*=0) is omitted, because this usually includes a number of events which influence firm's performance in this period, as one-time M&As transaction costs, necessary for the deal, etc. The ratio mean computed in the post-merger period of 4 years avg. represents the mean ratio of the first (*T*+1), second (*T*+2), third (*T*+3) & fourth year (*T*+4) after the M&As event.

| *Class* | *Variable* | *Pre-Merger (4 years avg.)* | *Post-Merger (4 years avg.)* | *T-statistic (Two-tail)* | *P-Value* | *Confidence Interval 95%* |
|---|---|---|---|---|---|---|
| Liquidity ratios | V01 | 1,088 | 3,09 | 1,35 | 0,192 | (-1,10; 5,10) |
| | V02 | 0,887 | 2,93 | 1,38 | 0,185 | (-1,07; 5,16) |
| | V03 | 0,64 | 1,14 | 0,70 | 0,491 | (-0,968; 1,959) |
| | V04 | -6,541 | 137,97 | 2,20 | 0,041** | (6,788; 282,06) |
| Activity ratios | V05 | 175,8 | 1214 | 1,94 | 0,068* | (-87; 2163) |
| | V06 | 236 | 396 | 2,00 | 0,056* | (-4,8; 324,9) |
| | V07 | 45,7 | 26,7 | -1,62 | 0,115 | (-42,9; 4,9) |
| | V08 | -6,0 | 8,4 | 1,25 | 0,223 | (-9,3; 38,0) |
| | V09 | 1,042 | 0,618 | -2,32 | 0,028** | (-0,798; -0,05) |
| | V10 | 9,8 | -2,8 | -1,89 | 0,070* | (-26,39; 1,11) |
| | V11 | 5,39 | 1,63 | -2,26 | 0,036** | (-7,24; -0,28) |
| Profitability ratios | V12 | 25,91 | 27,3 | 0,34 | 0, 733 | (-7,04; 9,88) |
| | V13 | 11,78 | 6,09 | -2,13 | 0,041** | (-11,11; -0,25) |
| | V14 | 8,82 | 1,1 | -1,92 | 0,068* | (-15,99; 0,61) |
| | V15 | 6,79 | 1,53 | -3,52 | 0,001*** | (-8,30; -2,23) |

| | | | | | | |
|---|---|---|---|---|---|---|
| | V16 | 21,1 | 1,1 | -4,45 | 0,000*** | (-29,10; -10,87) |
| Financial structure & viability ratios | V17 | 36,2 | 24,3 | -1,85 | 0,073* | (-25,07; 1,18) |
| | V18 | 0,727 | 0,759 | 0,14 | 0,891 | (-0,435; 0,498) |
| | V19 | 2,22 | 3,7 | 0,40 | 0,697 | (-6,24; 9,15) |
| | V20 | 148,61 | 151,48 | -0,03 | 0,975 | (-188,5; 182,8) |
| Investment ratios | V21 | 0,489 | 0,016 | -3,90 | 0,001*** | (-0,723; -0,224) |
| | V22 | 0,296 | 0,156 | -0,84 | 0,407 | (-0,483; 0,203) |
| | V23 | 10,0 | 1,12 | -2,66 | 0,017** | (-15,91; -1,79) |
| | V24 | 3,52 | 2,04 | -2,06 | 0,049* | (-2,947; -0,009) |
| | V25 | 29 | 28 | -0,04 | 0,971 | (-61,3; 59,2) |
| | V26 | 50,9 | 38,1 | -0,55 | 0,589 | (-61,3; 35,7) |

*Notes:* 1. ***, **, * indicate that the means are significantly different from zero at the 0.01, 0.05, and 0.10 probability level, respectively, as above at Table 2.
2. At variable V04 and V20, the amounts are in millions euro.

**Table 7: Mean Pre-merger and Post-merger Ratios of Acquiring Firms for Metals and Metallic Products Industry**

Table values are the mean computed for each ratio for the research sample of four M&As of Greek listed firms for the Metals and Metallic Products Industry. The ratio mean computed in the pre-merger period of 4 years avg. represents the mean ratio of the fourth (*T*-4), third (*T*-3), second (*T*-2) & first year (*T*-1) before the M&As event. The year 0 (*T*=0) is omitted, because this usually includes a number of events which influence firm's performance in this period, as one-time M&As transaction costs, necessary for the deal, etc. The ratio mean computed in the post-merger period of 4 years avg. represents the mean ratio of the first (*T*+1), second (*T*+2), third (*T*+3) & fourth year (*T*+4) after the M&As event.

| *Class* | *Variable* | *Pre-Merger (4 years avg.)* | *Post-Merger (4 years avg.)* | *T-statistic (Two-tail)* | *P-Value* | *Confidence Interval 95%* |
|---|---|---|---|---|---|---|
| Liquidity ratios | V01 | 1,608 | 2,076 | 1,51 | 0,143 | (-0,169; 1,107) |
| | V02 | 1,178 | 1,617 | 1,56 | 0,130 | (-0,139; 1,018) |
| | V03 | 4,0 | 15,7 | 1,11 | 0,284 | (-10,8; 34,0) |
| | V04 | 10,38 | 31,8 | 2,32 | 0,032** | (2,101; 40,73) |
| Activity ratios | V05 | 183,6 | 189,2 | 0,26 | 0,796 | (-38,4; 49,4) |
| | V06 | 218 | 159,7 | -1,68 | 0,105 | (-129,6; 13,2) |
| | V07 | 80,3 | 33,5 | -3,38 | 0,002*** | (-75,2; -18,4) |
| | V08 | 7,3 | 3,44 | -0,50 | 0, 624 | (-20,1; 12,45) |
| | V09 | 0,639 | 0,625 | -0,21 | 0,838 | (-0,158; 0,1292) |
| | V10 | 2,4 | 1,97 | -0,61 | 0,545 | (-1,876; 1,015) |
| | V11 | 1,56 | 1,369 | -0,60 | 0,556 | (-0,848; 0,468) |
| Profitability ratios | V12 | 21,1 | 20,19 | -0,26 | 0,796 | (-7,72; 5,98) |
| | V13 | 12,4 | 0,8 | -2,58 | 0,016** | (-20,90; -2,34) |
| | V14 | 8,57 | 5,6 | -0,71 | 0,487 | (-11,76; 5,78) |
| | V15 | 5,19 | 5,0 | -0,08 | 0,940 | (-5,41; 5,02) |
| | V16 | 7,5 | 6,8 | -0,12 | 0,905 | (-14,11; 12,57) |
| Financial structure & viability ratios | V17 | 53,6 | 24,4 | -2,85 | 0,010** | (-50,6; -7,9) |
| | V18 | 1,7 | 1,99 | 0,44 | 0,666 | (-1,09; 1,675) |
| | V19 | 2,45 | 1,55 | -1,05 | 0,305 | (-2,653; 0,867) |
| | V20 | 40,13 | 29,88 | 0,70 | 0,496 | (-20,91; 41,408) |
| Investment ratios | V21 | 2,15 | 0,285 | -1,36 | 0,195 | (-4,81; 1,07) |
| | V22 | 0,77 | 0,91 | 0,22 | 0,827 | (-1,169; 1,448) |
| | V23 | 3,35 | 0,221 | -4,20 | 0,001*** | (-4,696; -1,554) |
| | V24 | 10,5 | 2,43 | -1,42 | 0,176 | (-20,13; 4,03) |
| | V25 | 4,2 | 3,07 | -0,68 | 0,502 | (-4,56; 2,3) |
| | V26 | 36 | 23,1 | -1,00 | 0,332 | (-40,5; 14,7) |

*Notes:* 1. ***, **, * indicate that the means are significantly different from zero at the 0.01, 0.05, and 0.10 probability level, respectively, as above at Table 2.

2. At variable V04 and V20, the amounts are in millions euro.

**Table 8: Mean Pre-merger and Post-merger Ratios of Acquiring Firms for Building Materials and Fixtures Industry**

Table values are the mean computed for each ratio for the research sample of three M&As of Greek listed firms for the Building Materials and Fixtures Industry. The ratio mean computed in the pre-merger period of 4 years avg. represents the mean ratio of the fourth (*T*-4), third (*T*-3), second (*T*-2) & first year (*T*-1) before the M&As event. The year 0 (*T*=0) is omitted, because this usually includes a number of events which influence firm's performance in this period, as one-time M&As transaction costs, necessary for the deal, etc. The ratio mean computed in the post-merger period of 4 years avg. represents the mean ratio of the first (*T*+1), second (*T*+2), third (*T*+3) & fourth year (*T*+4) after the M&As event.

| *Class* | *Variable* | *Pre-Merger (4 years avg.)* | *Post-Merger (4 years avg.)* | *T-statistic (Two-tail)* | *P-Value* | *Confidence Interval 95%* |
|---|---|---|---|---|---|---|
| Liquidity ratios | V01 | 1,505 | 1,641 | 0,60 | 0,555 | (-0,337; 0,608) |
| | V02 | 1,065 | 1,23 | 0,98 | 0,339 | (-0,188; 0,518) |
| | V03 | 10,5 | 1,46 | -1,61 | 0,135 | (-21,49; 3,32) |
| | V04 | 29,39 | 53,63 | 1,15 | 0,270 | (-20,85; 69,33) |
| Activity ratios | V05 | 143,6 | 183 | 1,07 | 0,306 | (-40,0; 117,9) |
| | V06 | 194 | 180 | -0,23 | 0,821 | (-144,2; 115,8) |
| | V07 | 69,1 | 39,2 | -2,06 | 0,054* | (-60,3; 0,5) |
| | V08 | 6,16 | 18,7 | 1,20 | 0,255 | (-10,5; 35,6) |
| | V09 | 0,698 | 0,572 | -1,17 | 0,257 | (-0,351; 0,099) |
| | V10 | 2,046 | 1,76 | -0,64 | 0,532 | (-1,229; 0,656) |
| | V11 | 1,25 | 0,996 | -1,23 | 0,234 | (-0,686; 0,178) |
| Profitability ratios | V12 | 32,42 | 36,1 | 1,08 | 0, 298 | (-3,58; 10,92) |
| | V13 | 18,71 | 15,9 | -0,61 | 0,551 | (-12,68; 7,06) |
| | V14 | 14,12 | 22,63 | 2,69 | 0,014** | (1,92; 15,10) |
| | V15 | 9,09 | 11,99 | 1,49 | 0,150 | (-1,14; 6,92) |
| | V16 | 15,88 | 20,14 | 1,22 | 0,235 | (-2,99; 11,51) |
| Financial structure & viability ratios | V17 | 58,1 | 32,8 | -2,75 | 0,015** | (-44,88; -5,67) |
| | V18 | 1,614 | 1,62 | 0,02 | 0,986 | (-0,788; 0,801) |
| | V19 | 1,643 | 1,646 | 0,01 | 0,992 | (-0,654; 0,660) |
| | V20 | 90,26 | 114,34 | 0,50 | 0,625 | (-78,80; 126,96) |
| Investment ratios | V21 | 2,91 | 1,285 | -1,26 | 0,234 | (-4,47; 1,21) |
| | V22 | 0,81 | 1,04 | 0,38 | 0,708 | (-1,080; 1,556) |
| | V23 | 4,72 | 3,95 | -0,44 | 0,662 | (-4,43; 2,88) |
| | V24 | 6,84 | 6,3 | -0,29 | 0,776 | (-4,55; 3,47) |
| | V25 | 4,93 | 1,81 | -2,08 | 0,072* | (-6,58; 0,35) |
| | V26 | 22,5 | 7,85 | -2,01 | 0,079* | (-31,5; 2,17) |

*Notes:* 1. ***, **, * indicate that the means are significantly different from zero at the 0.01, 0.05, and 0.10 probability level, respectively, as above at Table 2.
2. At variable V04 and V20, the amounts are in millions euro.

**Table 9: Mean Pre-merger and Post-merger Ratios of Acquiring Firms for Holding Companies**

Table values are the mean computed for each ratio for the research sample of four M&As of Greek listed firms for the Holding Companies. The ratio mean computed in the pre-merger period of 4 years avg. represents the mean ratio of the fourth (*T*-4), third (*T*-3), second (*T*-2) & first year (*T*-1) before the M&As event. The year 0 (*T*=0) is omitted, because this usually includes a number of events which influence firm's performance in this period, as one-time M&As transaction costs, necessary for the deal, etc. The ratio mean computed in the post-merger period of 4 years avg. represents the mean ratio of the first (*T*+1), second (*T*+2), third (*T*+3) & fourth year (*T*+4) after the M&As event.

| *Class* | *Variable* | *Pre-Merger (4 years avg.)* | *Post-Merger (4 years avg.)* | *T-statistic (Two-tail)* | *P-Value* | *Confidence Interval 95%* |
|---|---|---|---|---|---|---|
| Liquidity ratios | V01 | 1,378 | 1,35 | -0,05 | 0,963 | (-1,459; 1,396) |
| | V02 | 1,34 | 1,114 | 0,34 | 0,736 | (-1,18; 1,63) |
| | V03 | 20,7 | 42 | 0,81 | 0,431 | (-34,9; 77,6) |
| | V04 | 12,55 | 1,53 | -1,02 | 0,323 | (-33,91; 11,87) |
| Activity ratios | V05 | 239 | 542 | 1,71 | 0,149 | (-153; 759) |
| | V06 | 248 | 369 | 0,60 | 0,558 | (-322; 564) |
| | V07 | 59,8 | 0,28 | -7,48 | 0,000*** | (-76,59; -42,47) |
| | V08 | 3,83 | -0,023 | -5,55 | 0,000*** | (-5,309; -2,393) |
| | V09 | 0,629 | 0,01 | -8,05 | 0,000*** | (-0,783; -0,453) |
| | V10 | 2,56 | 0,241 | -7,07 | 0,000*** | (-2,998; -1,632) |
| | V11 | 1,099 | 0,023 | -8,91 | 0,000*** | (-1,334; -0,817) |
| Profitability ratios | V12 | 23,58 | 22,5 | -0,29 | 0, 781 | (-9,75; 7,51) |
| | V13 | 12,4 | 28,3 | 0,95 | 0,397 | (-30,7; 62,6) |
| | V14 | 9,78 | 44,2 | 2,49 | 0,067* | (-3,9; 72,8) |
| | V15 | 7,02 | 3,74 | -2,21 | 0,036** | (-6,32; -0,24) |
| | V16 | 11,79 | 2,68 | -5,24 | 0,000*** | (-12,74; -5,49) |
| Financial structure & viability ratios | V17 | 58,7 | 58,7 | 0,01 | 0,996 | (-20,20; 20,31) |
| | V18 | 1,67 | 4,28 | 2,52 | 0,022** | (0,43; 4,78) |
| | V19 | 4,9 | 9,9 | 1,55 | 0,135 | (-1,68; 11,76) |
| | V20 | 42,16 | 78,87 | 0,94 | 0,363 | (-47,96; 123,39) |
| Investment ratios | V21 | 0,472 | 0,115 | -4,34 | 0,000*** | (-0,527; -0,186) |
| | V22 | 0,187 | 0,126 | -0,63 | 0,540 | (-0,271; 0,15) |
| | V23 | 0,71 | 4,62 | -4,90 | 0,000*** | (-5,573; -2,245) |
| | V24 | 4,36 | 3,8 | -0,57 | 0,572 | (-2,593; 1,470) |
| | V25 | 2,23 | 2,63 | 0,32 | 0,753 | (-2,22; 3,03) |
| | V26 | 20,6 | 102,4 | 2,90 | 0,012** | (20,9; 142,8) |

*Notes:* 1. ***, **, * indicate that the means are significantly different from zero at the 0.01, 0.05, and 0.10 probability level, respectively, as above at Table 2.
2. At variable V04 and V20, the amounts are in millions euro.