

*Full Length Research Paper*

# Mergers, taxation and accounting performance: Some evidence from Greece

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The study examines the merger effects on the accounting performance of Greek firms, in parallel with their taxation impact, during the period of economic crisis in Greece. The study analyses twelve accounting measures from financial statements and financial ratios of a sample of Greek listed firms in the Athens Exchange that carried out one merger in the period from 2010 to 2015 as acquirers. The results revealed that none of the twelve examined accounting measures have changed significantly due to the merger event, one year after the merger transaction. Different results are proposed regarding the impact of the type of industry, as the findings of the study indicate a better accounting performance for the constructions firms than the others from our sample. Furthermore, the study investigates the impact of the new Greek Income Tax Code (GITC) (Law 4172/2013) that refers to the corporate restructuring in Greece. There is evidence that there is some effect from the new GITC and it provides further opportunities for capital gains, not subject to tax from mergers, during the period of the economic crisis in Greece.

**Key words:** Mergers, taxation, financial statements, financial ratios, Greece.

## INTRODUCTION

Mergers and acquisitions (M&As) represent one of the main mechanisms for corporate restructuring. Firms with M&As try to gain access to new resources in several business sectors and, by way of the resource redeployment, increase revenues and reduce cost (Philippatos et al., 1985; Neely and Rochester, 1987; Eccles et al., 1999; Leepsa and Mishra, 2013; Omoye and Aniefor, 2016). The new management strategies,

after the change of the control, could increase post-merger performance, as it is reported in the financial statements of a firm (Belz et al., 2013). Despite the fact that many researchers are very enthusiastic about the merger effects, some others are sceptic about this approach (Ramaswamy and Waegelien, 2003; Stunda, 2014; Tao et al., 2017). A characteristic declaration of this contradiction is in a well-known article from Jensen

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and Ruback (1983) that claimed:

“Finally, knowledge of the source of takeovers gains still eludes us”.

Over time, merger transactions attract the interest of researchers worldwide: Jensen and Ruback (1983) and Jarrell et al. (1988) provided a comprehensive literature review for the US studies; Gregory (1997) for the UK studies and Mueller (1980) presents, apart from the US and UK market, the experience for several European countries; Sharma and Ho (2002) for the Australian market, while Tao et al. (2017) provides a literature review of cross-border M&As deals for developed countries and emerging economies.

Further examination of the phenomenon of M&As during the last decades, has shown that most of the researches had focused on the financial performance with the analysis of stock returns around announcement dates, presenting a positive aspect of mergers, but always without testing the ex-post accounting performance (Caves, 1989). Nevertheless, Roll (1986) concludes that the null hypothesis of zero abnormal performance to acquirers should not be rejected and this conclusion of Roll (1986), in many subsequent articles, still holds (Agrawal and Jaffe, 2000). Furthermore, from another approach, a smaller body of work on the analysis of the financial performance after M&As has focused on the announcement period returns in a long-run perspective (Agrawal et al., 1992).

However, there is a common belief in several past research papers that stock price performance studies are unable to determine whether M&As create real gains or losses and to provide direct evidence on the sources of any merger-related result, as it is difficult to distinguish between stock-market inefficiencies and improvements in performance resulting from the merger (Sharma and Ho, 2002). The examined increases or decreases in equity values are typically attributed to some unmeasured source of real economic factors (such as synergy) or a general and not well established idea (as management past decisions) (Healy et al., 1992; Pazarskis et al., 2011). Within this aspect, Jensen and Ruback (1983) argued that:

“These post-outcome negative abnormal returns are unsettling because they are inconsistent with market efficiency and suggest that changes in stock prices overestimate the future efficiency gains from mergers.”

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 consciousness of their result argumentation; the use of post-merger accounting data (and especially, financial ratios) is a better and safer path to test directly for changes in accounting performance that result from

mergers than stock price studies (Healy et al., 1992; Chatterjee and Meeks, 1996).

Accounting performance and the examination of the financial statements of a firm are partially connected to the effects of a merger decision and tax issues, while the taxation is a major factor that may influence the choice of the exact form of corporate restructuring (Auerbach and Reishus, 1987a; Landsman and Shackelford, 1995; Ayers et al., 2007; Becker and Fuest, 2011; Belz et al., 2013). Also, there is no common methodology with universal acceptance in past research for the impact of opportunity at mergers to carry over net operating losses and unused tax credits or depreciation new policies of the merged firms on corporate performance (Breen, 1987).

Last, in Greece, after the U.S.'s crisis in mid 2007, there was an outbreak of an economic crisis, which started at the end of 2009 and everyone noticed that this crisis due to public debt was not temporary. In recent years, the lack of liquidity and the reduction of profitability dominated almost every business section in Greece (Pantelidis et al., 2014). From this point of view, a contemporary study for the Greek business in the period of the economic crisis with the analytical examination of the accounting performance could be interesting and useful.

Thus, the aim of the study is to investigate the merger effects of Greek firms on their accounting performance in parallel with their taxation impact; and try to reveal new insights in mergers transactions during the period of an economic crisis in a small open economy, as it is happening now in Greece. To the best of knowledge, this is the first study that examines a sample of merged firms, regarding the impact of the Law 4172/2013, the new Greek Income Tax Code (GITC), and more specifically, the provisions of the articles 52 to 56 of this Law that refers to the corporate restructuring in Greece made from 1 January 2014 onwards.

In order to examine the post-merger accounting performance, we proceed to an analysis of a sample of eighteen firms, listed at the Athens Exchange in Greece that executed one merger in a six-year-period (2010 to 2015), using accounting measures from financial statements and financial ratios (with data analysis from 2009 to 2016). The results reveal some effect of the merger decision in the period of the economic crisis in Greece and that the new GITC provides further opportunities for capital gains, which are not subject to tax from mergers.

### **Legal framework on M&As in Greece**

According to several regulations published in the Greek Government Gazette, the general legal framework on M&As activities is described by articles 68 to 80 of the Law 2190/1920, which concern public companies, limited by shares (S.A.), and were amended by the Presidential

Decree 498/1987. M&As activities that concern L.T.D. companies are directly regulated by the Law 3190/1955, and more specifically, according to articles 54 to 55 of this Law. This basic framework changed, into some specific areas on M&As, by the Law Decree 1297/1972, and articles 1 to 5 of the Law 2166/1993 that concern fiscal incentives for the formation of larger companies by mergers.

Furthermore, the article 16 of the Law 2515/1997 specifies and enhances the legal process for bank mergers, in accordance to article 2 of the Law 2076/1992. Also, the Law 2515/1997 surrogates articles 1 to 15 of the Law 2292/1953, and there are special provisions and incentives for the concentration of the Greek banking system. In accordance with the Law Decree 1297/1972, and the Law 2166/1993, the Law 2992/2002 provides new incentives for investments and it expands the categories of investments, including the form of international M&As.

In relation to cross-border mergers of companies of different Member States in the European Union-EU, Law 2578/1998 (as amended by law 3517/2006) implemented the EU Mergers Tax Directive into Greek law (relative Directive 90/434, as amended by Directive 2005/19, respectively) and applies to corporate restructuring (mergers, demergers, contribution of assets, etc.). Also, Law 3777/2009 enhances the process of cross-border mergers of companies and was implemented, in accordance with the provisions of EU Directive 2005/56, as EU aims for the further expansion of the EU companies within the EU market.

Regarding the general legal framework of the taxation for the merger decision, it is described by Law 4172/2013 (Greek Income Tax Code (GITC)), according to the EU Merger Directive 2009/113. This EU directive provides a common system for the taxation of company restructuring (as mentioned above) concerning companies in different EU Member States and provides the opportunities for some merger transactions with capital gains that are not subject to tax from mergers. The provisions of articles 52 to 56 of the Law shall apply to corporate restructuring made from 1 January 2014 onwards.

As it is specified in the laws aforementioned, the type of M&As, or more specifically under which an exact way of M&As activity can be formed is possible in three ways in Greece:

1. Merger by absorption, where the acquiring firm retains its name and its identity, and it acquires all of the assets and liabilities of the acquired company; after the merger the acquired firm ceases to exist as a separate business entity.
2. Merger by consolidation, where an entirely new firm is created; both the acquiring firm and the acquired firm terminate their previous legal existence and become part of the new firm, and
3. Merger by acquisition, where one firm purchases

another firm's stock for cash or shares of stock (but always less than 10% of the transaction value in shares).

Also, according to the process and the nature of the negotiations, as well as the agreement of companies' management, if it is pro- or contra-oriented to the M&As action (this is partially regulated in Greece by the Law 3461/2006 for the process of a public offer), M&As activities are distinguished as (Sudarsanam, 1995):

1. Friendly M&As, where the acquirer and the acquired company achieve a common agreement on this specific action, there is a common consensus, and no official reaction on the completion of the process and
2. Hostile M&As or takeovers, where the target company express its disagreement to the M&A action, and attempt to defend itself through some precise actions from the eventual acquirer company.

Last, starting from 2005 all publicly listed firms in the European Union (EU) member states were required to prepare their financial statements according to the International Accounting Standards (IAS) (EU Regulation 1606/2002 for the mandatory adoption of IAS from 2005 onwards). Compliance with IAS is compulsory for the publicly listed firms in Greece since January 2005, while other firms that are not obliged to apply IAS still use Greek General Accounting Principles (GAAP) (Seetharaman et al., 2008; Iatridis and Rouvolis, 2010). The relevant IAS is the IFRS 3 - Business Combinations, which is designed to determine the accounting when an acquirer obtains control of a business (M&As). It sets out the principles on the recognition and measurement of acquired assets and liabilities, and the determination of goodwill with the use of the "acquisition method", which requires assets acquired and liabilities assumed to be measured at their fair values at the acquisition date (Hamberg et al., 2011).

## LITERATURE REVIEW

Many past studies on post-merger performance that employed accounting ratios and were conducted during the last decades supported an improvement in the corporate performance after the M&As action (Cosh et al., 1980; Parrino and Harris, 1999; Vijayakumar and Sridevi, 2013; Muhammad and Zahid, 2014; Oruc Erdogan and Erdogan, 2014; Rao-Nicholson et al., 2016), while others claimed that there was a deterioration in the post-merger firm performance (Meeks, 1977; Salter and Weinhold, 1979; Mueller, 1980; Kusewitt, 1985; Ravenscraft and Scherer, 1987; Dickerson et al., 1997; Sharma and Ho, 2002; Oduro and Agyei, 2013), and some others concluded a "zero" result or ambiguous results from the M&As action (Kumar, 1984; Healy et al., 1992; Chatterjee and Meeks, 1996; Ghosh, 2001;

Srivastava and Prakash, 2014; Rodionov and Mikhailchuk, 2016).

Also in Greece, there is a scarcity of studies that evaluate the performance of firms after M&As using accounting ratios and with an extensive analysis of financial statements. As earlier mentioned, some Greek studies supported a partial improvement to the corporate performance after the M&As action (Mylonidis and Kelnikola, 2005; Agorastos et al., 2012), while others claimed that there was a deterioration in the post-merger firm performance (Pazarskis et al., 2011; Pantelidis et al., 2014). Furthermore, regarding the taxation effects and merger decision several studies have been conducted over time:

Auerbach and Reishus (1987a) examine the impact of taxes on the frequency of mergers and acquisitions in the United States in 1968 to 1983 on a sample of 318 large mergers and acquisitions. In order to achieve this, the tax characteristics of a sample of merged firms were compared to a similar sample of randomly selected non-merged firms. Their results showed that a possible tax increase in tax rates is not an important factor in the influence of mergers during that period. The tax benefits associated with acquiring a business when we have tax relief seem to have an insignificant effect on M&As activity. The frequency and magnitude of the tax benefits appear to be broadly the same in both samples, and the magnitude of the potential tax benefit is not an incentive for mergers.

Breen (1987) focused on the four provisions of the Tax Code which are widespread and create significant merger incentives in the United States. Firstly, the opportunity to transfer net operating losses and unused tax credits between businesses; secondly, the opportunity to use the assets or the new sales prices regarding a new basis for depreciation after merger; thirdly, the incentive provided by the lowest rate of income tax on capital gains; fourthly, the opportunity for the acquiring company to deduct the interest payments from the taxable income. His findings do not support the general perception that merger decisions are often driven by specific tax code provisions for the potential tax advantages and Breen (1987) claimed that there is not a clear link between specific tax benefits and the merger decision.

Auerbach and Reishus (1987b) also examined whether taxes really play an important role in the merger decision. After studying the sample of the 318 largest mergers and acquisitions between 1968 and 1983, their results show that for the M&As of the decade 1970 and early 1980s among the major publicly listed companies in the United States, the possibilities of transferring unused tax credits and tax losses was the most important tax factor. This was in particular the case where the benefits were used by the acquiring company in order to protect the taxable income. However, and when potential tax benefits were recognized, no evidence was found that they have played

an important role in the structure and frequency of merger decisions.

Landsman and Shackelford (1995) examined the capital gains resulting from the acquisition of RJR Nabisco in 1989. Access to confidential shareholder records enabled them to accurately assess the impact of tax gains during this acquisition. The results showed a negative correlation between the stock price and the weighted average number of shares sold during the acquisition period. Thus, their findings suggested that for every dollar taxed, shareholders were asking for 20 cents in the stock price for their capital gains.

Erickson (1998) approaches the structure of corporate acquisitions from the perspective of investment finance, and provides evidence that the tax regime of M&As affects the way in which these transactions take place. A sample of 344 business acquisitions completed between 1985 and 1988 from a variety of sources was collected. In order to be included in the final sample, the following criteria had to be met:

1. Both the buyer and the target were listed companies in the United States before the transaction
2. Both the buyer and the target were in Compustat's data
3. The acquiring company and the target company were not in the financial services industry before the transaction
4. The buyer has no controlling vote as shareholder in the target before the acquisition
5. Information about the merger event, the date of completion and the terms of the transaction are available to the public.

Also, acquisitions of businesses are categorized as taxable and non-taxable. The results support the view that the fiscal characteristics of the target firm, as well as the potential tax gains on the liabilities of the target firm, affect the structure of M&As.

Ayers et al. (2007) investigated the role of tax policy and its impact on takeover activity with an analysis of the lock-in effect for corporate acquisitions. In particular, an analysis was made examining if the takeover activity is inversely related to capital gains arising from the shareholders' tax rates. Measures were taken for each acquisition within three months from 1973 to 2001 (7,358 mergers over 115 quarters). In principle, their results have shown that the policy of tax rate is very important in capital gains' taxation as there is a significant negative association between this and the acquisition activity. They claimed that consistent with the lock-in effect, they provide evidence that capital gains taxes represent significant transaction costs, which actually could decrease acquisition activity during periods of high capital gains taxation.

Becker and Fuest (2007) studied whether the US government should take steps to advance from the tax

relief system to a tax exemption scheme. For this reason, they looked at how taxation affects the international distribution of double-taxation capital regimes and examined the taxation of firms in a model where international capital flows are either possible investment plans with relocation of real capital or acquisitions of existing businesses. The investments are motivated by either cost reduction or market entry. The conclusion is that international taxation prevails in the case of possible investment plans, as the system of deducted tax rates is not always the optimal and the foreign tax system fails to ensure neutrality.

Mescall (2007) using a large sample of mergers and acquisitions from 27 countries over a 16-year period (5,837 M&As between 1990 and 2005), investigated how fiscal and economic policies affect cross-border mergers and acquisitions. In his study, he provides evidence that tax policies can affect the profits of cross-border mergers and acquisitions. The study is the first proof that the risk associated with transfer pricing is affected by M&As and the countries' policies influence the merger decision. Finally, this study may be of interest not only to policy makers who are directly involved in pricing policy, but also in the relevant international accounting standard.

There is no clear answer in the past researches about the precise and basic sources of merger profits (Jensen and Ruback, 1983). Tax reductions could be considered as a part of synergies that could lead to the composition of extra merger profits. Devos et al. (2008) calculated the average of the synergy earnings, which was estimated at 10.03% of the share capital of the merged companies by analyzing the cash flow forecasts for the acquiring, target and combined entities in a sample of 264 large merged industrial firms during 1980 to 2004. Devos et al. (2008) estimated that the economic synergies from tax savings are only 1.64%, arguing that tax issues usually only play a small role in mergers. Also, business synergies with an average of about 8.38%, may in fact be much higher, varying from merger to merger. According to Devos et al. (2008) there is strong evidence that mergers generate profits from improving the allocation of resources and not by reducing the tax burden or increasing the market power of the merged firm.

Becker and Fuest (2011) analyzed tax competition and tax coordination in a model where capital flows are presented in the form of mergers and acquisitions rather than greenfield investments. Thus, they created a model in which they assumed a world of two countries: domestic and foreign. Each country is inhabited by a large number of households and households live only for two periods. The results were as follows:

If governments only used the tax code applied across the country's borders, tax levels they choose in the context of tax competition are effective for the economy as a whole, meaning there is no room for improving effectiveness of transnational fiscal coordination. Therefore, a change in this country's taxation does not affect M&As investments

in other countries, provided no tax exogenous impact arises. On the other hand, if there is a different tax code for both income within and outside the country, tax competition leads to negative financial consequences that result in inefficiently high tax rates.

Belz et al. (2013) analysed the post-merger operating performance of the target firm. They compared three indicators of tax avoidance at the target before and after the deal:

1. Profitability
2. Leverage and
3. Effective tax rate (ETR = tax expense divided by pre-tax income).

They found that target tax avoidance improves, resulting in lower tax payments in the post-merger period. Similar results were found in the studies of Ravenscraft and Scherer (1989), Clark and Ofek (1994) and Tropina (2015). Belz et al. (2013) argued that this decrease in target operating performance following M&As (consistent with previous results) may be partially explained by tax motivated transfer pricing.

Edwards et al. (2016) examined all the M&As events by U.S. listed firms with foreign targets that were announced and completed between the years 1993 to 2012. They investigated the effect of cash trapped overseas on these U.S. multinational corporations in cross-border M&As. They observed that firms with high levels of trapped cash make less profitable cross-border M&As with their cash payment and present a decreased return on assets (ROA). Also, they supported that the American Jobs Creation Act (AJCA) of 2004 was an incentive for some U.S. firms to repatriate their foreign earnings, which were held as cash abroad (but at a much lower tax cost than before the AJCA).

## METHODOLOGY

### Accounting measures-quantitative variables

An event study on mergers with the examination of the abnormal returns could be critical to evaluate the company's performance (Jensen and Ruback, 1983; Caves, 1989). As mentioned earlier, the study aims to evaluate the performance based on the post-merger accounting data and financial ratios, and did not want to be exposed to this factor by using abnormal returns (Healy et al., 1992). Furthermore, 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 (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, the examination of accounting performance and the financial statements of a firm for the merger decision is a better and safer path (Healy et al., 1992; Chatterjee and Meeks, 1996; Ramaswamy and Waeglein, 2003; Marfo et al., 2013; Halimahton et al., 2014; Muhammad and Zahid, 2014; Oruc et al., 2014). Thus, the sample processing and examination in the study were

**Table 1.** Accounting measures used.

Variable	Accounting measures	Analysis
TASS	Total assets	Total assets
SFUND	Shareholders' funds	Shareholders' funds
SAL	Sales	Sales
OPINC	Operating income	Operating income
PLBT	P/L before taxes	P/L before taxes
NETIN	Net income	P/L After taxes
EPR	Earning power ratio	Operating Income / Total assets
OPM	Operating profit margin	Operating income / Sales
ROABT	Return on assets (before taxes)	P/L before taxes / Total assets
ROEBT	Return on equity (before taxes)	P/L before taxes / Shareholders' funds
ROAAT	Return on assets (after taxes)	Net income / Total assets
ROEAT	Return on equity (after taxes)	Net income / Shareholders' funds

carried out by main elements of financial statements and ratios. Accounting data analysis with financial statements and ratios provide useful information regarding companies' merger decisions in general and more specifically on taxation issues (Auerbach and Reishus, 1987a; Landsman and Shackelford, 1995; Chatterjee and Meeks, 1996; Seetharaman et al., 2008; Becker and Fuest, 2011; Belz et al., 2013). All the ratios that were used are presented and analyzed in Table 1.

In fact, there are many other approaches for business evaluation performance, different from the aforementioned. 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. However, in considering Kaplan (1983) arguments against excessive use of ROI types of measurements, the aforementioned referred ratio selection of this study is confirmed as better:

"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).

Thus, an adoption of additional and combined measures is believed to be necessary in order to provide a holistic view of the accounting performance of a firm (Pazarskis et al., 2011; Agorastos et al., 2012; Pantelidis et al., 2014).

### Sample selection

From a sample of all merger events, the transactions of listed firms in the period from 2010 to 2015 in Greece are tracked. Secondly, for further analysis, the firms that performed M&As activities in less than a one-year period before and after the several merger examined events are excluded. Also, some firms from this preliminary sample firms have been de-listed from the Athens Exchange for various reasons (bankruptcy, not meeting the standards of the market, etc.), they were excluded from the sample, as well as the firms with bank activities, which present special peculiarities in their accounting evaluation.

Furthermore, firms from different basic industry categories are selected per year, while firms in the same industry with merger activity were eliminated, in order to minimize the effect of a specific industry sector and thus, to exclude any specific industry variation in our sample (instead of the use of an industry adjustment mean). Finally, they are examined for the six-year-period (2010 to 2015)

three firms per year and in total, eighteen acquiring firms, which is the final firm sample that carried out a merger action as acquirers in Greece during the examined period.

Their type of transaction is a merger by absorption (where the acquiring listed firm acquires all of the assets and liabilities of the acquired company; after the merger the acquired firm ceases to exist as a separate business entity). Merger by consolidation (where a new firm is created and both the acquiring firm and the acquired firm terminate their previous legal existence and become part of the new firm) is not examined as an option for listed firms in Greece, as this transaction will lead them to be de-listed from the Athens Exchange, while the transaction of the acquisition is beyond the scope of this study.

The study proceeds to an analysis only of listed firms as their financial statements are published and it is easy to find and evaluate them from the firms' post-merger accounting performance. The accounting measures of the sample firms are computed from their financial statements. The merger events of our sample, the financial statements and any other data were received from the published data on the Athens Exchange's website. The examined industry sectors of these firms are four different basic industry categories:

1. Primary sector-PRI: 4 firms
2. Industrial sector-IND: 6 firms
3. Commerce and services-CMS: 5 firms
4. Constructions-CNS: 3 firms.

The analysis of sample firms is tabulated at the following table per industry sector and 'pre' or 'post' of the new Greek Income Tax Code (regarding the fact that the provisions of articles 52 to 56 of the GITC - Law 4172/2013 shall apply to corporate restructuring made from 1 January 2014 onwards) (Table 2).

### Evaluation of accounting performance after merger

The merger action of each firm from the sample is considered as an investment that is evaluated by the Net Present Value criterion (if  $NPV \geq 0$ , the investment is accepted). Based on this viewpoint, the study proceeds to its analysis and regards the impact of the merger 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; Agorastos et al., 2012). The crucial research question that is investigated by examining the aforementioned ratios is the following:

**Table 2.** Analysis of merger events per year, industry and difference in the Greek income tax code.

Year	2010			2011			2012			2013			2014			2015		
IND.	CMS	CMS	PRI	PRI	PRI	IND	IND	PRI	CNS	CMS	CMS	IND	IND	IND	CNS	CMS	IND	CNS
GITC	Pre	Pre	Pre	Post	Post	Post	Post	Post	Post									

“Is accounting performance in the post-merger period greater than it is in the pre-merger period?”.

The selected financial ratios for each company of the sample over a one-year period before (year T-1) or after (year T+1) the merger events are calculated, and the mean from the sum of each financial ratio for the years T-1 is compared to the equivalent mean from the years T+1, respectively.

In this study, the mean from the sum of each financial ratio is computed than the median, as this could lead to more accurate research results, and this argument is consistent with many other researchers (Neely and Rochester, 1987; Sharma and Ho, 2002; Agorastos et al., 2012; Pantelidis et al., 2014).

The study does not include the year of merger event (T=0) in the comparisons, because this usually presents a number of events with influence firm’s accounting performance as one-time merger transaction costs, necessary for the deal (Healy et al., 1992; Erdogan and Erdogan, 2014). Last, in order to test the difference in accounting performance of the post-merger and pre-merger period, two independent sample mean t-tests for unequal variances are applied.

**Mergers, accounting performance and different industry types**

Healy et al. (1992) argued the accounting performance of merged firms was greater in comparison with non-merged firms, and this implies to industry differentiation of accounting performance after mergers. Ramaswamy and Waegelein (2003) claimed that merged firms that are in dissimilar industries may have a better performance.

For the Greek market and before the outbreak of the economic crisis, Agorastos et al. (2012) argued that the accounting performance of the acquiring firms in the post-merger period is affected by industry type, as there are, in general, different results at the post-merger performance for the examined acquiring firms of each industry. Similar

results were found by Pantelidis et al. (2014) in the beginning of the economic crisis (examined years with merger activity 2008 to 2009) in Greece, while Rao-Nicholson et al. (2016) also claimed that there are differences at the Association of Southeast Asian Nations (ASEAN) countries. In order to analyze any possible impact on the sample firms from the industry type, regarding the four basic industry categories mentioned earlier (primary sector (PRI), industrial sector (IND), commerce and services (CMS), constructions (CNS)) we divide the study sample in four separate groups:

1. PRIM: 4 firms, which is 22% of the sample
2. INDU: 6 firms, 33%
3. CMS: 5 firms, 28% and
4. CNS: 3 firms, 17% of the sample.

Afterwards, the study computed the differences between the means of post-merger and pre-merger ratios for the examined accounting measures and  $\Delta$  represents the change in every accounting measure before and after the merger event (Ramaswamy and Waegelein, 2003). Then, for these data, 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 Kruskal-Wallis test. The Kruskal-Wallis test is a nonparametric test, alternative to a one-way Analysis of variance (ANOVA) for the analysis of accounting measures in mergers (Sharma and Ho, 2002). 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 (Pantelidis et al., 2014).

**Mergers and impact of the new Greek income tax code**

The Law 4172/2013 (Greek Income Tax Code-GITC) according to the EU Merger Directive 2009/113, describes the new general legal framework of the taxation for the

merger decision in Greece. As mentioned earlier, this EU Directive creates a common system for the taxation of company restructuring in EU and provides the opportunities for some merger transactions with capital gains that are not subject to tax from mergers. The provisions of articles 52 to 56 of the Law shall apply to corporate restructuring made from 1 January 2014 onwards.

In order to reveal any possible impact of the taxation on mergers in Greece, we examine the sample firms in two new different separate groups: the firms with mergers in the Pre-GITC period (years 2010 to 2013) and the firms with mergers in the Post-GITC period (years 2014 to 2015). There are twelve firms in the Pre-GITC period and six firms in the Post-GITC period, and we apply the Kruskal-Wallis test again for these new parameters.

Furthermore, it is well known that mergers provide the opportunity (after the unity of the merged firms) to carry over net operating losses and unused tax credits or depreciation new policies of the merged firms, with high impact on corporate performance (Breen, 1987; Scholes and Wolfson, 1990); particular indications on this issue could examined the study variables ( $\Delta$ TASS,  $\Delta$ OPINC,  $\Delta$ PLBT and  $\Delta$ NETIN).

**RESULTS AND DISCUSSION**

**Evaluation of accounting performance after merger**

Table 3 presents the comparison results (t-tests) of accounting measures used for the evaluation of the pre- and the post-merger performance. Regarding the impact of mergers on the examined twelve variables (TASS, SFUND, SAL, OPINC, PLBT, NETIN, EPR, OPM, ROABT, ROEBT,

**Table 3.** Comparison results (t-tests) of accounting measures used for pre- and post-merger performance.

Variable	Mean post-merger	Mean pre-merger	t-value	p-value	95% CI
TASS	319606	313162	0.03	0.976	(-420652; 433538)
SFUND	114756	118213	-0.04	0.970	(-187732; 180817)
SAL	224594	162879	0.52	0.605	(-178874; 302305)
OPINC	7580	8521	-0.07	0.946	(-28916; 27033)
PLBT	-1071	-1969	0.09	0.926	(-18588; 20386)
NETIN	-2729	-3113	0.05	0.962	(-15985; 16753)
EPR	0.0049	0.0138	-0.41	0.687	(-0.0536; 0.0359)
OPM	0.010	0.0152	-0.13	0.899	(-0.0864; 0.0763)
ROABT	-0.0263	-0.0156	-0.39	0.698	(-0.0666; 0.0452)
ROEBT	0.49	-4.6	1.10	0.287	(-4.70; 14.97)
ROAAT	-0.0329	-0.0205	-0.52	0.610	(-0.0616; 0.0368)
ROEAT	0.40	-4.9	1.08	0.295	(-5.06; 15.73)

Notes: \*\*\*,\*\*,\* indicate that the change of the mean is significantly different from zero at a significance level of 0.01, 0.05, and 0.10, respectively, as calculated by comparing the average of two independent subassemblies (two independent sample mean t-tests) at ratios of sample. More specifically, for the three aforementioned cases the classification levels relative to the value of the p-value are the following:  $p < 0.01$  as strong evidence against  $H_0$  (see. on, \*\*\*);  $0.01 \leq p < 0.05$  moderate evidence against  $H_0$  (see. on, \*\*);  $0.05 \leq p < 0.10$  minimum evidence against  $H_0$  (see. on \*);  $0.10 \leq p$  no real evidence against  $H_0$ . The amounts in variables: TASS, TDEBT, SAL, PLBT, NETIN, OPINC, SFUND, are in thousands euro.

ROAAT, ROEAT), there is no significant change of any variable. This result is consistent with the results of some studies (Kumar, 1984; Healy et al., 1992; Chatterjee and Meeks, 1996; Ghosh, 2001; Srivastava and Prakash, 2014). However, it is not consistent with the results of some other studies that found a decline of the profitability ratios (Meeks, 1977; Salter and Weinhold, 1979; Mueller, 1980; Kusewitt, 1985; Ravenscraft and Scherer, 1987; Dickerson et al., 1997; Sharma and Ho, 2002; Oduro and Agyei, 2013; Pantelidis et al., 2014; Rodionov and Mikhailchuk, 2016 (in crisis periods). Also, the study results are not consistent with the results that found an improvement in accounting or profitability measures (Cosh et al., 1980; Parrino and Harris, 1999; Mylonidis and Kelnikola, 2005; Vijayakumar and Sridevi, 2013; Halimahton et al., 2014; Muhammad and Zahid, 2014; Erdogan and Erdogan, 2014). Furthermore, the study results for the Greek market, since there is no significant profitability improvement, do not support the hypothesis of market power (Lubatkin, 1983; Pazarskis et al., 2011). 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 (Table 3).

#### Mergers, accounting performance and different industry type

The findings of the study for the change ( $\Delta$ ) in every accounting measure at the pre- and post-merger period and after the Kruskal-Wallis test are tabulated in Table 4. The results indicate that six ( $\Delta$ TASS,  $\Delta$ OPINC,  $\Delta$ EPR,  $\Delta$ OPM,  $\Delta$ ROAB,  $\Delta$ ROAAT) out of twelve variables have changed significantly. This reveals, in general, a better

accounting performance for the constructions (CNS) firms from our sample in contrast to the three other basic industry categories: primary sector (PRI), industrial sector (IND) and commerce and services (CMS). Similar results (better accounting post-merger performance for the constructions' sector) for the Greek market were found by Pantelidis et al. (2014) in the beginning of the economic crisis (examined years of merger activity 2008-2009). However, it is not consistent with the results of Agorastos et al. (2012) that came to the conclusion that, even if they found different results at the post-merger performance for the acquiring firms of each examined industry in Greece and before the outbreak of the economic crisis, they have not found a better accounting performance of the acquiring firms of the constructions' sector in the post-merger period.

#### Mergers and impact of the new Greek income tax code

The new GITC is the general legal framework of the taxation for the merger decision, according to the EU Merger Directive 2009/113, which provides a common system for the taxation of company restructuring in the EU and opportunities for some merger transactions with capital gains that are not subject to tax from mergers. Table 3 presents the comparison results (kruskal-wallis tests) of change in accounting measures used for the new GITC (Law 4172/2013, articles 52 to 56). This reveals that four ( $\Delta$ TASS,  $\Delta$ OPINC,  $\Delta$ PLBT,  $\Delta$ NETIN) out of twelve variables have significantly changed, while the firms with mergers in the Post-GITC period (years 2014-2015) present a better accounting performance in these

**Table 4.** Comparison results (kruskal-wallis tests) of change in accounting measures of industry type.

Variable	$\Delta$ TASS	$\Delta$ SFUND	$\Delta$ SAL	$\Delta$ OPINC	$\Delta$ PLBT	$\Delta$ NETIN	$\Delta$ EPR	$\Delta$ OPM	$\Delta$ ROABT	$\Delta$ ROEBT	$\Delta$ ROAAT	$\Delta$ ROEAT
PRIM	-10913	-13828	1834	-7608	-8527	-8139	-0,0912	-0.1922	-0.0822	-0.0783	-0.0808	-0.0839
INDU	5994	-470,0	648,5	534,5	562,9	377,5	-0,0053	-0.0055	0.0025	0.0051	-0.0031	-0.0033
CMS	-36504	-15614	-13786	-2777	-3562	-3146	-0,0301	-0,0531	-0.0254	-0.1087	-0.0234	-0.0975
CNS	-10770	-3857	38030	9849	17939	17096	0,0195	0,2213	0.0355	0.0582	0.0364	0.0595
p-value	0.071*	0.213	0.695	0,049**	0,214	0,174	0,060*	0,028**	0,096*	0.530	0.096*	0.511

\*\*\*, \*\*, \*: rejection of the null hypothesis at a significance level of 0.01, 0.05, 0.1, respectively; The amounts in variables: TASS, TDEBT, SAL, PLBT, NETIN, OPINC, SFUND, are in thousands euro.

**Table 5.** Comparison results (kruskal-wallis tests) of change in accounting measures used for GITC.

Variable	$\Delta$ TASS	$\Delta$ SFUND	$\Delta$ SAL	$\Delta$ OPINC	$\Delta$ PLBT	$\Delta$ NETIN	$\Delta$ EPR	$\Delta$ OPM	$\Delta$ ROABT	$\Delta$ ROEBT	$\Delta$ ROAAT	$\Delta$ ROEAT
Post-GITC	5994	-337,9	-7101	1432	8954	4139	-0.0053	-0.0055	0.0025	0.0051	-0.0030	-0.0033
Pre-GITC	-18981	-13185	1347	-2896	-4085	-3545	-0.0216	-0.0343	-0.0333	-0.0323	-0.0289	-0.0281
p-value	0.031**	0.190	0.512	0.075*	0.049**	0.061*	0.349	0.223	0.223	0.512	0.160	0.574

\*\*\*, \*\*, \*: Rejection of the null hypothesis at a significance level of 0.01, 0.05, 0.1, respectively; The amounts in variables: TASS, TDEBT, SAL, PLBT, NETIN, OPINC, SFUND, are in thousands euro.

variables than firms with mergers in the Pre-GITC period (years 2010-2013).

In more detail, our results indicate (variables  $\Delta$ TASS,  $\Delta$ OPINC,  $\Delta$ PLBT and  $\Delta$ NETIN) that the new GITC provides further opportunities for capital gains, which are not subject to tax from mergers. Similar results that merger transactions may be affected by the Income Tax Code or capital gains tax policy was found in the study of Erickson (1998), Ayers et al. (2007), Belz et al. (2013) and Edwards et al. (2016), while other studies do not claim that there is an important alignment of the merger decision and the taxation issues in the business arena (Auerbach and Reishus, 1987a; Breen, 1987; Devos et al., 2008) (Table 5).

### Interpretation of results and discussion

Scholes and Wolfson (1990) support that the changes of taxation are partially connected to the effects of a merger decision and tax issues. The tax laws are a major factor that could influence the choice of the exact form of corporate restructuring (Ayers et al., 2007; Belz et al., 2013). Also, there is no common methodology with universal acceptance in past research for the impact of opportunity at mergers (Breen, 1987).

In this study, the examination of accounting performance and financial statements were chosen to examine the merger decision and corporate taxation in Greece, regarding the fact that the general legal framework of the taxation for

the merger decision were changed by the new GITC, which affects corporate restructuring made from 1 January 2014 onwards. Despite the result that none of the examined accounting measures have changed significantly due to the merger event, the impact of different industry type indicates a significant change in the accounting performance of the sample firms. The findings of the study for the examined basic industry categories revealed different impact of mergers, while the examined merger transactions were affected positively from the new GITC, during the economic crisis in Greece. Devos et al. (2008) argued that there is strong evidence that mergers generate profits from improving the allocation of resources and not by reducing the tax burden or

increasing the market power of the merged firm. Furthermore, Pantelidis et al. (2014) supported that during the Greek economic crisis the lack of liquidity and the reduction of profitability dominated almost every business section in Greece.

Nevertheless, this study argues for a better accounting performance through mergers in Greece in particular industry sectors, while the whole image of the Greek economy is not prohibitive for merger investments. Also, there is clear evidence that the introduction of the new GITC generated a better accounting performance for the merger involved firms in the post-GITC period than for firms with mergers before. This signals that the new GITC provides further opportunities for capital gains, which are not subject to tax from mergers.

All-in-all, it is clear that there are several opportunities for potential investors through mergers in the Greek business environment, but they should be very cautious to achieve capital gains, which are not subject to tax from mergers and should further analyse every target firm accordingly their specific industry sector, in order to decide a possible good merger deal.

## Conclusions

The study aims to provide new insights regarding the merger effects of Greek firms on their accounting performance, in parallel with their taxation impact, during the period of the economic crisis in Greece. The study analyses several accounting measures from financial statements and financial ratios in order to examine the impact of mergers on the accounting performance of merger-involved firms in Greece. Furthermore, the study investigates the impact of the new GITC (Law 4172/2013), regarding the provisions of the articles 52 to 56 of this Law that refers to the corporate restructuring in Greece made from 1 January 2014 onwards.

Using six basic accounting sizes and six ratios (as employed accounting measures), the accounting performance in the post-merger period of a sample of Greek listed firms in the Athens Exchange that carried out one merger in the period from 2010 to 2015 as acquirers, is investigated (with data analysis from 2009 to 2016). The results revealed that none of the twelve examined accounting measures have changed significantly due to the merger event, one year after the merger transaction. Also, the merger events of the involved firms and the impact of different industry type were examined according to their accounting performance. The findings of the study indicate a significant change in six out of twelve accounting measures at the post-merger period and a different accounting performance of the examined basic industry categories.

Furthermore, an exploration of the influence from the new GITC (Law 4172/2013, articles 52 to 56) at the merger decision is performed. The study results found

that four out of twelve variables have significant changed, while the firms with mergers in the Post-GITC period (years 2014-2015) present a better accounting performance in these variables than firms with mergers in the Pre-GITC period (years 2010-2013). More analytically, the results indicate, and especially for the variables with a relative change at Total Assets, Operating Income, P/L before taxes and Net Income, that the new GITC provides further opportunities for capital gains, which are not subject to tax from mergers. This reveals that merger transactions may be affected positively from the national Income Tax Code in Greece, during the period of economic crisis. Lastly, the research results could be used as:

1. Accounting research for the merger decision and with alternative examined samples (not only merger-involved listed firms in the Athens Exchange, but also non-listed) or within different time intervals or involved in international merger activities.
2. A recent empirical result of the merger activity in Greece during the economic crisis for policy makers, tax, and other state authorities or investors for their potential investments.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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