

TRANSITION TO IFRS: FINANCIAL STATEMENT EFFECTS AND TAXATION AT THE CONSTRUCTION INDUSTRY IN GREECE

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Abstract

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This study evaluates the IFRS adoption on the financial statements and taxation of Greek companies at the construction industry in Greece, which are listed at the Athens Stock Exchange. The research computes the taxation amount paid and employs twelve accounting measures for the analysis of financial statements for the IFRS transition period (three years before and after their adoption in Greece). Regarding the taxation, the amount paid in the pre- to post-IFRS period was considerably decreased (about 28%). Regarding the examined accounting measures, the transition to IFRS lead to a deterioration of some basic financial ratios (more specifically, five profitability ratios) and could therefore affect the overall profitability and performance of the examined companies in their industry sector. Our results provide also evidence that IFRS adoption increased firm value, while lower level of earnings can influence accounting quality and could be examined further as a red flag for earnings manipulation. The present study, as a recent empirical result of the IFRS impact and taxation on the construction sector in Greece, could be useful for policy makers, tax and other state authorities or managers.

Keywords: IFRS, IAS, Greek GAAP, Construction Industry, Taxation, Accounting Measures

1. INTRODUCTION

In the modern economic environment, the need for measurable accounting procedures is a very important issue both for academics or investors and other stakeholders (Wadesango et al., 2016; Alnodel, 2016; El-Bannany, 2018). Globalization has fostered the need for worldwide comparable accounting standards and regulations in all financial markets (Iatridis & Rouvolis, 2010; Pazarskis et al., 2014). Harmonization of accounting procedures has started in Greece (as in all European Union member states) since the beginning of 2003 when International Accounting Standards (IAS)¹ should be applied by

S.A., whose shares are listed on the Athens Stock Exchange (Naoum et al., 2011; Toudas, 2018).

Iatridis & Rouvolis (2010) argued that the main differences between Greek Generally Accepted Accounting Standards (GAAP) and IFRS related to the presentation of financial results, the accounting treatment and depreciation of certain tangible and intangible fixed assets, research and development expenditure and capitalisation criteria, deferred taxation, and accounting for goodwill and goodwill amortisation. Furthermore, IFRS adoption could increase firm value (Leung, 2016). Also, regarding earnings management lower accounting quality could signalize earnings manipulation.

Several studies have emerged from the international literature on the application of IAS worldwide using different research methodologies on different samples (Callao et al., 2007; Pazarskis et

¹ In the present study, there is no distinction made between International Accounting Standards (IAS), published until 2002, and the International Financial Reporting Standards (IFRS), published since 2002.

al., 2014; Huong, 2016; Boolaky & Hooi, 2016). However, the transition from the Greek GAAP to the International Accounting Standards may have affected the image of the financial statements of the companies and, by extension, the accounting measures or financial ratios, which are employed at these situations to evaluate business performance.

The Construction Sector is a branch in Greece that has been characterized in the last decade and after the 2004 Olympic Games in Athens by the creation of strong private construction groups and that some companies have high profitability, while others at the same time face severe financial and liquidity problems. In recent years, these companies have been confronted with the lack of funding, the Greek economic crisis and the prevailing climate of uncertainty, thus, many of these businesses have gone bankrupt or others have merged and others maintain to survive as healthy businesses (Pantelidis et al. 2016).

In particular at Greece, regarding the adoption of IAS, there have been various studies for listed companies in the Athens Stock Exchange, with analysis of various samples (Floropoulos & Moschidis, 2004; Ballas et al., 2010; Schleicher et al., 2010; Prather-Kinsey, 2010). However, none of these studies addressed the study and analysis of the listed companies in the Construction sector in relation to the taxation for the analysis of the change that arose from the adoption of the IAS at their financial statements and business performance of those listed companies.

The present study aims at assessing the impact of the adoption of IAS in the financial statements and the business performance of Greek listed companies on the Athens Stock Exchange in the Construction sector, with an analysis of the relative influence by the use of several accounting measures and financial ratios. Based on these, the impact of the adoption of IAS for the three years prior to (2002-2004) and thereafter (2005-2007) on their application in Greece is analyzed (Schleicher et al., 2010; Prather-Kinsey, 2010).

The structure of the work is as follows: the next section presents the literature review with similar studies on IAS at a global level and also related studies for Greek companies in different sectors (other than the construction sector). Next, the research design of this research is presented: research sample, quantitative variables and applied methodology. The next section analyses the results and the latter summarizes the present work with its conclusions.

2. LITERATURE REVIEW

Many researchers have been studying diachronically the impact of the adoption of International Accounting Standards on the businesses of the countries that adopted them (Tsalavoutas & Evans, 2010; Van Hulzen et al., 2011; Liou et al., 2015; Boolaky & Hooi, 2016; Krismiaji & Prabhata, 2016). From the international literature, several studies examine the impact of the application of IAS, some of which are described below.

For the Norwegian market, Stenheim & Madsen (2017) investigates the change in accounting quality when firms shifted from Norwegian GAAP (NGAAP) to International Financial Reporting Standards (IFRS). They investigated the change in accounting quality

with a sample of 640 firm-year observations from 2001 to 2008. The paper employed four commonly used approaches (value relevance of net earnings, book values, etc.) to investigate accounting quality for four years of pre-IFRS NGAAP observations and four years of IFRS-observations. Stenheim & Madsen (2017) argued that the adoption of IFRS increases the relevance accounting information has for valuation purposes than under NGAAP, which provides more conservative accounting numbers.

Regarding an emerging market in Africa, Uwuigbe et al. (2017) examined the impact of IFRS on stock market behaviour in the financial and consumer goods sector of the Nigerian economy. The study analysed a sample of 52 listed companies on the Nigeria Stock Exchange, while secondary data was used to provide further evidence. Uwuigbe et al. (2017) claimed that IFRS adoption has improved the trading volume activities of listed firms in Nigeria. Also, they observed that there is no significant relationship between IFRS and stock price status.

For three emerging market countries in two different continents (namely Morocco, South Africa and Turkey), Hessayri & Saihi (2017) studied whether IFRS adoption translates into increases in equity ownership for large shareholders. They employed a sample that included 55 non-financial firms and 23 financial firms. Hessayri & Saihi (2017) concluded that top shareholders invest more in firms' stocks after their commitment to IFRS.

In Canada, Leung (2016) examined if the accounting quality of Canadian GAAP can still be improved since its adoption of IFRS in 2011, with a set of measurements of earnings management as the proxies of accounting quality. Leung (2016) provided evidence that even his results are mixed; there are still certain significant improvements in accounting quality. Also, Leung (2016) stated that firm value following IFRS adoption has been increased, but at the expense of lower accounting quality.

Regarding the Gulf Cooperation Council (GCC) countries, Alnodel (2016) examined the effect of the IFRS adoption. Alnodel (2016) employed a correlation matrix of stock market index returns for the insurance sector (years 2007 to 2013) as a proxy for the national stock market index return and analysed the causality among financial variables by employing cointegration analysis. Its study concluded that the adoption of IFRS by GCC stock markets has no significant impact on the integration of the capital market.

For the Indian market, Ntoug et al. (2016) examined the impact of the adoption has on a sample of 440 listed firms in India. They tried to identify the effects of the mandatory IFRS adoption by relying on panel data gathered over the period 2002 to 2012, resulting in more than 4.840 firm-year observations. Ntoug et al. (2016) concluded that the adoption of IFRS across their examined period provides some improvement in the value relevance of accounting information with their stock return model.

In another study for the Indian market, Kamarajugadda & Sireesha (2015) investigated the financial statements under IFRS in order to examine the relevance, reliability and quality of accounting information of companies that make double reporting with Indian GAAP. Their analysis is based on a sample of 10 Indian companies that have voluntarily adopted IFRS. Thus, financial statements prepared in accordance with Indian GAAP and

International Accounting Standards have been received for a period of six years. Financial ratios were analyzed using various statistical tests, such as t-test. Significant differences were found between Indian GAAP and IFRS and the study showed that the IFRS adoption provided a statistically significant increase in liquidity and profitability.

In a South-Eastern European country, Munteanu et al. (2014) examined the differences in financial statements between Romanian GAAP and IFRS for Romanian companies. Bucharest Stock Exchange (BSE) listed companies participated and the results showed that there were statistically significant differences in the median and the mean for the whole sample, while in the analysis of each subcategory of companies per industry sector, the results are mixed.

For a developing economy, Terzi et al. (2013) analysed the impact of IFRS adoption for listed companies in Turkey. They have studied the financial statements prepared in accordance with IFRS and national GAAP. They worked on the financial statements of listed companies in the Istanbul Stock Exchange (ISE) that belonged to the manufacturing industry. Terzi et al. (2013) argued that the financial statements prepared in accordance with national and International Accounting Standards had statistically significant differences.

Regarding the Chinese market, Qu et al. (2012) examined whether IFRS in 2007 converged with Chinese accounting standards and improved the quality of accounting information for investors in the Chinese market. They used the data from 309 listed Chinese companies before and after IFRS in China. The findings of this study have shown that earnings per share, in relation to the book value of equity, return both before and after the IFRS convergence periods. Also, Qu et al. (2012) argued that investors' confidence in the information from the financial statements for investment decisions becomes greater during the period of convergence after IFRS.

For the Czech market, Jindrichovska & Kubickova (2012) analyzed the impact of IFRS on financial ratios of sixteen companies. They attempted to measure the magnitude of differences in selected ratios, as calculated in accordance with national Czech GAAP and under the IFRS era. The study finds that there are significant differences arising from these two forms of financial reporting. This research concludes that, even the findings are not statistically significant; the transition to IFRS could lead to a deterioration of the basic financial ratios and could, therefore, affect the overall performance of the examined companies.

In Greece, regarding the IAS adoption and the analysis of financial statements with financial ratios, there have been various studies for listed companies in the Athens Stock Exchange, with analysis of various samples. However, none of these studies dealt specifically with the study of the listed companies in the Construction sector in connection with the taxation of this particular sector for the analysis of the change that arose from the adoption of the IAS. Several modern studies in Greece have dealt with the impact from IAS adoption with the implications of different methodologies (Floropoulos and Moschidis, 2004, Ballas et al., 2010, Schleicher et al., 2010, Prather-Kinsey, 2010). Some studies that examined the impact of IAS on Greek companies from their financial statements and compared to the

previous period of application of Greek GAAP are presented below:

Pantelidis et al. (2016) evaluated the impact of IFRS adoption on the financial statements and the business performance, in general, of Greek companies listed on the Athens Stock Exchange of the construction industry using fourteen ratios. Based on these, the effect of IFRS adoption analyzed for the years before and after the implementation in Greece. The results, according to the ratios of the study revealed that the effect of the IFRS adoption in the financial statements, as well as to business performance, was relatively strong, for all the three examined periods following the IFRS adoption.

In another study, Pantelidis et al. (2012) studied the impact of the IAS adoption in the financial statements of commercial and industrial companies using fourteen ratios. Based on these, the effect of the IAS adoption was analyzed for three years before (2002-2004) and then (2005-2007) their implementation in Greece. The final conclusion was that the impact of the IAS adoption on the financial statements and the business performance of all the listed companies in the commercial and industrial sector was significant and the results in general showed an improvement in some of the analyzed ratios, which changed significantly over the three-year examined period.

Also, for the Greek market, Georgakopoulou et al. (2010) examined the application of IFRS compared to the Greek GAAP in a sample of 38 Greek manufacturing companies for the period 2004. The study analyzed the IFRS quantitative received results of several accounting measures in relation to these of Greek accounting system and the results showed that the adoption of the IFRS has affected the size of the accounting measures, such as the ratio of shareholders' funds to total assets, the ratio of total liabilities to total equity, and the ratio of shareholders' funds to total of liabilities.

Similar results found Georgakopoulou et al. (2008), when they investigated all Greek companies in the industrial sector, applying IFRS and Greek GAAP. They conducted a survey using a sample of Greek companies in the industrial sector for the year 2004. The initial sample consists of 39 Greek companies in the industrial sector, listed on the Athens Stock Exchange. The impact of IFRS on various financial ratios was analyzed to evaluate the quantitative impact of IFRS adoption. Georgakopoulou et al. (2008) applied to test the correlations of the samples t-test and Wilcoxon test. Their results reveal that most of the ratios differ significantly from IFRS in relation to the Greek GAAP.

3. RESEARCH DESIGN

3.1. Sample and data

The sample of Greek companies selected to be examined on how their financial statements were affected by the IFRS adoption are initially all listed companies of the Athens Stock Exchange at the Construction Sector. These companies are with the highest stock market capitalization on their industry and, therefore, they are representative of the behaviour and evolution of the Greek stock market on the construction industry over a specific period (Callao et al., 2007; Pazarskis et al., 2014). Based on

this point for company data were available, fifteen companies were finally selected. For these fifteen listed Greek companies, their financial statements are evaluated and compared to the three years prior to the adoption of IAS (2002-2004) and three years after the adoption of IAS (2005-2007) with the use of different accounting measures. The data for these listed Greek companies in the research sample derived from their published financial statements (using the Library databank of the University of

Macedonia) and from online announcements published on the Athens Stock Exchange.

3.2. Selected accounting measures

The IFRS effects on financial statements and taxation at the sample firms are evaluated based on several accounting measures and financial ratios. For the purpose of this study, twelve accounting measures and financial ratios are utilized, which are tabulated at the following table.

Table 1. Accounting measures used

| <i>Variables</i> | <i>Accounting measures</i> | <i>Analysis</i> |
|------------------|---------------------------------|----------------------------------------|
| 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 |

3.3. Methodology

In order to evaluate the IFRS effects on financial statements and the performance of the sample firms, the study proceeds to an analysis of several ratios from their financial statements. The selected accounting ratios for each company of the sample over a three-year-period before (year $T-3$, $T-2$, $T-1$) or after (year $T+1$, $T+2$, $T+3$) the adoption of IFRS in Greece are calculated, and the mean from the sum of each accounting ratio for the years $T-3$, $T-2$ and $T-1$ is compared with the equivalent mean from the years $T+1$, $T+2$ and $T+3$ respectively. 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. This argument is consistent with other researchers (Iatridis & Rouvolis, 2010; Pazarskis et al., 2014; Pantelidis et al., 2012; 2016; and others). To test these hypothesis two independent sample mean t-tests for unequal variances are applied, which are calculated as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \quad (1)$$

where,

n = number of examined accounting measures

\bar{X}_1 = mean of Pre-IFRS accounting measures

\bar{X}_2 = mean of Post-IFRS accounting measures

s = standard deviation

1 = group of Pre-IFRS accounting measures

2 = group of Post-IFRS accounting measures

4. RESULTS

Iatridis & Rouvolis (2010) argued that the main differences between Greek GAAP and IAS are related to the presentation of financial results, the accounting treatment and depreciation of certain tangible and intangible fixed assets, deferred taxation, and accounting for goodwill and goodwill amortisation. In Tables 2 and 3 are the descriptive statistics, while Table 4 presents the comparison results (t-tests) of accounting measures used for the evaluation of the pre- and the post-IFRS performance.

Table 2. Descriptive statistics of accounting measures (pre-IFRS)

| <i>Variables</i> | <i>Mean</i> | <i>Median</i> | <i>SD</i> | <i>Minimum</i> | <i>Maximum</i> |
|------------------|-------------|---------------|-----------|----------------|----------------|
| TASS | 150063 | 119718 | 116851 | 26398 | 538379 |
| SFUND | 99072 | 59202 | 101172 | 8294 | 532621 |
| SAL | 74835 | 41751 | 86286 | 5302 | 374462 |
| OPINC | 8711 | 6883 | 7744 | -7231 | 35444 |
| PLBT | 7938 | 6216 | 9932 | -6822 | 42414 |
| NETIN | 6022 | 4267 | 8851 | -3964 | 34932 |
| EPR | 7,41 | 7,492 | 0,05447 | -0,09244 | 0,19078 |
| OPM | 16,3 | 16,04 | 0,1861 | -0,6085 | 0,7223 |
| ROABT | 5,61 | 4,387 | 0,04563 | -0,02233 | 0,18233 |
| ROEBT | 10,29 | 7,83 | 0,0918 | -0,0568 | 0,3802 |
| ROAAT | 3,92 | 3,1 | 0,03719 | -0,01772 | 0,14013 |
| ROEAT | 6,72 | 4,31 | 0,0689 | -0,041 | 0,2128 |

Note: The amount in variables: TASS, SFUND, SAL, OPINC, PLBT, NETIN, are in thousands euro and the mean and the median in variables: EPR, OPM, ROABT, ROEBT, ROAAT, ROEAT are in %.

Table 3. Descriptive statistics of accounting measures (post-IFRS)

| Variables | Mean | Median | SD | Minimum | Maximum |
|-----------|--------|--------|---------|----------|---------|
| TASS | 222987 | 167934 | 194106 | 40020 | 891393 |
| SFUND | 135257 | 68884 | 185180 | 8294 | 863819 |
| SAL | 87380 | 53828 | 97739 | 3407 | 381239 |
| OPINC | 7687 | 5618 | 9214 | -13866 | 28204 |
| PLBT | 4972 | 1540 | 15269 | -36037 | 40254 |
| NETIN | 3597 | 679 | 13836 | -35287 | 35987 |
| EPR | 4,83 | 3,383 | 0,06243 | -0,05024 | 0,25049 |
| OPM | 14,4 | 10,7 | 0,1439 | -0,0962 | 0,5663 |
| ROABT | 1,61 | 0,977 | 0,06297 | -0,13900 | 0,17805 |
| ROEBT | 1,1 | 2,91 | 0,1453 | -0,3484 | 0,2907 |
| ROAAT | 0,98 | 0,545 | 0,05719 | -0,13942 | 0,14459 |
| ROEAT | -0,2 | 1,56 | 0,1301 | -0,3412 | 0,2363 |

Note: The amount in variables: TASS, SFUND, SAL, OPINC, PLBT, NETIN, are in thousands euro and the mean and the median in variables: EPR, OPM, ROABT, ROEBT, ROAAT, ROEAT are in %.

Regarding the taxation, the amount paid in the pre-IFRS period from 86.240 (in thousands euro) was considerably decreased in the post-IFRS period to 61.870 (in thousands euro) (thus, $\Delta \approx 28\%$). Regarding the impact of IFRS adoption on the examined twelve variables (TASS, SFUND, SAL, OPINC, PLBT, NETIN, EPR, OPM, ROABT, ROEBT, ROAAT, ROEAT), there is a significant change at the following variables: total assets (TASS), earning power ratio (EPR) estimated as

operating income to total assets, return on assets before taxes (ROABT) computed as profit or loss before taxes to total assets, return on equity before taxes (ROEBT) examines profit or loss before taxes to shareholders' funds, return on assets after taxes (ROAAT) estimated as net income to total assets, return on equity after taxes (ROEAT) computed as net income to shareholders' funds.

Table 4. Comparison results (t-tests) of accounting measures used for pre- and post-IFRS period

| Variables | Mean Post-IFRS | Mean Pre-IFRS | t-value | p-value | 95% CI |
|-----------|----------------|---------------|---------|----------|--------------------|
| TASS | 222987 | 150063 | 2,16 | 0,034** | (5596; 140252) |
| SFUND | 135257 | 99072 | 1,15 | 0,254 | (-26586; 98954) |
| SAL | 87380 | 74835 | 0,65 | 0,520 | (-26091; 51182) |
| OPINC | 7687 | 8711 | -0,57 | 0,570 | (-4592; 2543) |
| PLBT | 4972 | 7938 | -1,09 | 0,278 | (-8376; 2443) |
| NETIN | 3597 | 6022 | -0,99 | 0,325 | (-7304; 2454) |
| EPR | 4,83 | 7,41 | -2,08 | 0,040** | (-0,0503; -0,0012) |
| OPM | 14,4 | 16,3 | -0,54 | 0,589 | (-0,0888; 0,0507) |
| ROABT | 1,61 | 5,61 | -3,42 | 0,001*** | (-0,0632; -0,0167) |
| ROEBT | 1,1 | 10,29 | -3,57 | 0,001*** | (-0,1437; -0,0408) |
| ROAAT | 0,98 | 3,92 | -2,87 | 0,005*** | (-0,0498; -0,0089) |
| ROEAT | -0,2 | 6,72 | -3,15 | 0,003*** | (-0,1139; -0,0254) |

Notes: 1. ***, **, * 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 above 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

2. The amount in variables: TASS, SFUND, SAL, OPINC, PLBT, NETIN, are in thousands euro and the mean in variables: EPR, OPM, ROABT, ROEBT, ROAAT, ROEAT are in %.

Thus, the transition to IFRS could lead to a deterioration of the basic financial ratios (more specifically, five profitability ratios) and could, therefore, affect the overall profitability and performance of the examined companies. This result is consistent with the results of some studies such as Georgakopoulou et al. (2010), Jindrichovska and Kubickova (2012), Terzi et al. (2013), Munteanu et al. (2014), Kamarajugadda and Sireesha (2015), Pantelidis et al. (2016).

Overall, our results suggest that IFRS adoption has been increased firm value following IFRS (similar results with Leung, 2016). Also, regarding earnings' size for the sample firms, there is a significant decrease in ROA and ROE ratios (before and after taxes). This could signalize earnings management existence leading to lower accounting quality but should be further examined for its existence and their special circumstances. Last, our results, as a recent empirical result of the IFRS impact and taxation on the construction sector in Greece, might

be of interest to accounting bodies and policymakers for current Greek GAAP (for non-listed firms) and IFRS (optional for non-listed firms and required for listed firms). Thus, the present study could be useful for tax and other state authorities or accounting practitioners and business managers.

5. CONCLUSION

Several studies have emerged from the international literature on IAS adoption worldwide using different research methodologies on different samples. The transition from the national GAAP to the International Accounting Standards may have affected the image of the financial statements of the companies and, by extension, the accounting measures or financial ratios, which are employed at these situations to evaluate business performance. The Construction Sector is one of the main industry sectors of every economy. In recent years, these companies in Greece have been confronted with the

lack of liquidity due to the Greek economic crisis. Regarding the adoption of IAS, there have been various studies, but none of these studies addressed the analysis of the listed companies in the Construction sector in relation to the taxation for the analysis of the change that arose from the adoption of the IAS.

The present study examines the adoption of IAS in the financial statements and the business performance of Greek listed companies on the Athens Stock Exchange in the Construction sector, with an analysis of the relative influence by the use of several accounting measures and financial ratios. It employs for the comparison results (t-tests) of accounting measures used for the pre- and the post-IFRS period. The results revealed that the transition to IFRS could lead to a deterioration of the basic financial ratios (profitability ratios) and could, therefore, affect the overall performance of the examined companies. The result of this study is

consistent with the results of some past studies. Regarding the taxation, the amount paid in the pre-IFRS period considerably decreased in the post-IFRS and thus about 28%.

Last, as an industry study, a potential weakness of this is the limited sample of one examined sector of the Greek economy. Another weakness of the study is the examination of our small sample with a univariate test and not a multivariate. However, future research of this study could examine a different sample that could include not only Greek listed firms, but also listed firms from other European countries within the same industry sector or examined within other time frame periods. Furthermore, the present study, as a recent empirical result of the IFRS impact and taxation on the construction sector in Greece, could be useful for policy makers, tax and other state authorities or managers.

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