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Group accounting: the effect of IFRS adoption. The case of Greece

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Abstract: The present study examines the value relevance of disclosed related party transactions (RPTs) in the Greek listed companies on the Athens Stock Exchange. We are based on two types of transactions: exchange of goods-products and the exchange of assets (group accounting), using a value relevance approach. We apply the model of Ohlson (1995) for the period 2003 - 2013 and we observe that the reported earnings of firms selling goods or assets to related parties exhibit a lower valuation coefficient than those of firms without such transactions. The Greek accounting standards provide limited recognition of assets, together with the frequent use of forecasts, resulting in a more conservative recognition of results compared to the IAS / IFRS, which are using fair value for the recognition of financial instruments and internally generated intangible assets.

Keywords: IFRS, value relevance, group accounting, financial reporting

JEL codes: M41

1. Introduction

An accounting number can be considered to be strengthening – recording the relative value relevance, if it is connected with the forecast of the equity market values. The condition for strengthening the value relevance of the accounting numbers is associated with the importance of the forecasting regarding the stock prices and whether these numbers reflect important / useful information to investors regarding the valuation of companies.

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The research of Barth *et al.* (2001), concerning the value relevance and its relativity, constitutes a result of comparison with an existing research of Holthausen and Watts (2001). Specifically, in their research, Holthausen and Watts (2001) conclude that the study of the value relevance provides little or no information on the setting of standards. In contrast, Barth *et al.* (2001) conclude that the development of editorial research regarding the value relevance provides important and useful information in the configuration of standards.

According to the above, the present study investigates two different aspects. First, it investigates the immediate effects of the compulsory adoption of the IFRS in the financial statements due to the significant accounting differences in the pre-adoption period (Nobes, 2006), by using transition statements as determined by IFRS 1 "First adoption of the International Financial Reporting Standards". Secondly, it investigates the implications arising from the adoption of the IFRS and the consequences of such adoption in the value relevance of accounting numbers, after the recording and the settlement of intercompany transactions, which take place during the preparation of the consolidated group financial statements, such as transaction of goods and exchange of assets (Ball, 2006; Hung & Subramanyam, 2004; Barth *et al.*, 2005; Leuz & Wysocki, 2008).

The examined period spans the period from 2003 to 2013. More specifically, the sample is categorized into two sub-periods in order to describe more accurately the effect of adoption in time of transition (2003-2004-2005), and the effect in a mature period after the year of transition (2005-2013).

In the present study we examine the effect of the transition from the one accounting system (Greek GAAP) to another (IAS / IFRS), as a result of the differences arising during the preparation of the first financial statements in the year 2005. It investigates the implications arising from the adoption of the IFRS and the consequences of them in the relative fair value of accounting numbers after the recording and settlement of intercompany transactions, which take place during the preparation of the consolidated financial statements of the group company, such as exchange of goods and exchange of assets (IAS 27, 28, 31 and IFRS 3).

The remainder of the paper proceeds as follows: we present Literature Review in Section 2; we describe the data and the methodology in Section 3; we present empirical results in section 4; and finally, we conclude and state future research in Section 5.

2. Literature review

The performance of the companies that have transactions with related parties is disputed. It would be of great interest to investigate whether there is a connection between the transactions of related parties and the existence or creation of incentives to manipulate earnings. The above finding is the result of the research of Bushman and Smith (2001), Gordon and Henry (2003), Gordon *et al.* (2007) and Sherman and Young (2001).

With reference to the research of Sherman and Young (2001), with regard to examining the current economic environment, they argue that there is intense pressure and personal motivation for managers to achieve sales growth in order to succeed the expectations regarding the investors income. According to the SEC, a consequence of the above is that more and more companies issue misleading financial statements, primarily by engaging "games" around profits. The result of these aggressive accounting strategies is the disorientation of shareholders, who obtain no real sense of the company's financial health, since at the time when problems come to light; the values of their shares record a sharp drop. Therefore, the question that arises is how to enable investors and their representatives on corporate boards to identify risks before they "burst" in their face.

Regarding Sherman and Young (2001), investors and their representatives, should be vigilant, paying special attention to the following six points: the measurement and recognition of income (revenue), the reservation and provision for future unstable costs, valuing assets, financial derivatives, intercompany transactions, and the information used to measure bench-marking performance. The aforementioned constitute fields in which it is possible to record any possible fraud against the shareholders.

According to the research of Gordon and Henry (2003), intercompany transactions are specified as those between the company and its directors, governors, officers or members of it. These transactions, which are varied and complex, depict and set up the concept of corporate governance, one of the key research issues of the past decade. Gordon and Henry (2003) emphasize the financial structure of intercompany transactions and its effect on the research literature through the investigation of two alternative aspects of these transactions.

There exists an opinion that these transactions constitute an area of conflict of interest among shareholders, due to the managers and directors allocating the responsibility for the administration and monitoring functions to the shareholders of the firm, which verifies the existence of the agency theory phenomenon that is evident during the process of such transactions. Secondly, this conflict of interest exists through the effectiveness and the satisfactory economic nature of these

transactions, confirming an in-depth knowledge of the company for the upcoming results.

According to the results of recent Greek studies regarding the value relevance, it is argued that there is a nonlinear relationship between conservative reporting and the value relevance of earnings. In particular, value relevance increases when moving from companies with low conservatism to middle - conservative firms (Kousenidis *et al.*, 2009), also in accordance with IFRS, the introduction of the value relevance principle brought significant changes in the accounting value of the share, but not in the earnings per share (Kousenidis *et al.*, 2010; Ge *et al.*, 2010). In addition, there are numerous implications regarding the value relevance of profits, in particular the available content of information for both profits and changes in profits decreased after the implementation of the IFRS (Negakis, 2013), and finally the application of IFRS contributed to a more timely recognition of losses, compared to the Greek GAAP (Dimitropoulos *et al.*, 2013).

2.1 Related party transactions

Kohlbeck and Mayhew (2010) resulted in an interesting balance between the valuation of transactions with related parties and a decline in the value of the company. In addition, they found that companies with related parties and the valuation of those have a negative correlation, which constitutes a different evaluation for companies with such parties, which is statistically and economically significant. Through the results of the research, they concluded that the market assesses the residual income more for companies without related parties, than for companies with such parties. The findings of residual income confirm that investors assess with less confidence reported income and reduce the returns of shareholders from future revenues.

With reference to the international studies, the integration of assets through the control of participations weakens the minority of shareholders, which causes a decrease in the value of stock prices and stock returns for those companies which have access to such transactions (Johnson *et al.*, 2000; Jiang *et al.*, 2005; Jiang & Wong, 2010).

However, Jiang and Wong (2010) showed that companies eventually have a stronger tendency to use the discrete accruals in order to affect the earnings, if there are intercompany sales or when there is no involvement in the related sales management. The level of propping is significantly lower in areas with strong economic configurations than in areas with weak.

In addition, stock markets determine new legislation under which they require disclosure of intercompany transactions, achieving direct correlation with the developed world financial markets (Djankov *et al.*, 2008; La Porta *et al.*, 2006).

La Porta *et al.* (2006) analyze certain provisions in securities legislation that are affected by the IPOs of each country, by examining the relationship between these effects and various development criteria of equity markets and additionally interpreting the evidence based on the available theories of securities legislation. The manipulation through the accruals principle can transfer profits from one year to the next, resulting in the realized profits of the future years not to be affected by this action. Therefore, the manipulation, through the transfer of prices arising from intercompany transactions, is a permanent earnings modification.

According to the research of Jian and Wong (2008), controlling owners of firms listed in the Chinese stock market, are using related sales to hold the earnings. Furthermore, discrete intercompany accounts receivable are not statistically significantly positive when firms have incentives to achieve specific objectives concerning the earnings. The abnormally high sales of the related parties, which are recorded in their research are not entirely a result of abnormal accrued sales, which will generate significantly positive discrete accounts receivable of related parties; on the contrary, the abnormal sales of related parties may also appear as cash flows (cash) from sales of listed companies to the controlling owners. In general, the prior academic research has focused more on tunneling than on propping of intercompany transactions.

Tunneling and propping of internal business transactions is of particular importance in companies with concentrated ownership. The structure of concentrated ownership is observed very frequently in many countries worldwide, particularly in East Asia (La Porta *et al.*, 1999; Claessens *et al.*, 2000).

Specifically, La Porta *et al.* (1999) in their research have used data related to the ownership of companies operating in 27 developed economies, in order to identify the perfect way to monitor shareholders of these companies. The survey results showed that very few of the sample companies had developed a public profile, according to the display model of ownership profile of modern business, as reported by Berle and Meann's (1932).

In their research Bertrand *et al.* (2002) report that the owners of business groups often have been accused of the integration of minority stakeholders, through tunneling of resources (funds) from companies with low cash flow in companies with strong cash flows. When applying the methodology in clusters (group of

companies) in India, a significant amount of tunneling is identified, much of which is reported through non-functional components of the earnings.

The Cheung *et al.* (2006) investigated a large group of transactions between related parties of listed companies on the stock exchange of Hong Kong and its controlling shareholders. The results showed that on average companies receive significant negative returns during both the initial announcement and during the twelve-month period following the announcement of related transactions having a priori as a result of the integration of minority shareholders.

According to the aforementioned, it is clear that the necessity for additional increase in the disclosure of information from the consolidation of financial statements is considered obligatory. These disclosures incorporate information concerning the economic relations of related companies, which are considered to be necessary by the investors, for a better understanding of the results.

3. Data and methodology

3.1 Methodology

Based on the above mentioned, investors are considered, by IFRS, as the primary users of the financial reports. They do not apply an accounting practice based on taxation, as the conservative accounting system of the countries of Central Europe, which relies on code and laws (as in Greek GAAP). The aforementioned accounting model is also referred to as French-German, which indicates the involvement of the state directly in the economic function, defining the range of taxation and the allocation of dividends. This differs from the Anglo-Saxon model of accounting, according to which the links between companies and investors are encouraged by providing information to the market. Hypothetically, gains and losses are presented with greater validity under the IFRS, by providing more significant information to the financial statements, which is unlike the accounting rules of the continental European countries (Ball, 2006; Barth *et al.*, 2008). This has created the impression that the accounting data appear greater in valuation consistency in countries that prefer the conversion from state-oriented accounting systems (stakeholder oriented) to investment-oriented accounting systems (shareholder oriented), such as those of the IFRS.

A recent study investigated these findings (Capkun *et al.*, 2008; Paananen, 2008), resulting in mixed conclusions. By applying the model of Olhson (1995) in its less complex, the version reinforces the literature of the present study through the exploration of the consistency in the value of accounting results in the period before and after the adoption of IFRS.

Through the investigation of the above proposal for greater relevance in the value at a highly state-oriented (stakeholder oriented) accounting regime, such as the Greek, this study contributes to the contradiction whether the investment-oriented accounting regime (shareholder oriented) appears to be of greater relevance in the valuation of the results, compared with the typical state-oriented (stakeholder oriented) accounting systems in continental Europe (Ali & Hwang, 2000). In addition, this study provides an answer to the question that arose from Healy and Palepu (2001), “what type of standards creates high quality accounting statements” setting the accounting quality as the connection between book and market value. Accounting quality increases, the closer the relationship between the two sizes (Barth *et al.*, 2008)).

3.1.1 *Models of incremental correlation and transition to the IFRS*

An additional part of the literature explores the incremental correlation of value of an accounting number (Amir *et al.*, 1993; Harris & Mueller, 1999; Hung & Subramanyam, 2004). Based on the models of marginal analysis, it is examined whether the accounting numbers under review are in favor of strengthening the interpretability degree of the value, indicating other variables (Holthausen & Watts, 2001: 6). Respectively, Biddle *et al.* (1995) believe that the investigation of the value relevance, coherence and its incremental examination, constitute two separate concepts. Two methods of measurement may record incremental coherence of relative value among them, although they may present no difference in the coherence of relative value (Hung & Subramanyam, 2004). The present study supports the literature of incremental analysis models, in general through the use of the model and in particular through the implementation of it during the transition from Greek GAAP to IFRS (Horton & Serafeim, 2009; Capkun *et al.*, 2008; Schadewitz & Markku, 2007).

Examining the book value of equity capitals in 2005, one can test the incremental value relevance of the adjusted accounting numbers, as they have been disclosed in the first financial statements under IFRS. Regarding the transition of the Greek companies to the IFRS and, in particular, the companies listed on the Greek stock market, the present study raises the question of whether modifications in accounting numbers are planned to moderate the use of creative accounting in the valuation. In addition, considering that the relevant research hypothesis investigates the significance degree of the adjustments disclosed in the reconciliation statements, it examined simultaneously the benefits of these statements. Since the adjustments in the balance sheet are coherent with the relative value, then the reconciliation statements offer significant information to investors.

3.1.2 The Ohlson model

The model of Ohlson (1995), which contains current accounting information and defining factors, is depicted as follows:

$$P_{it} = a_0 + a_1 BV_{it} + a_2 NI_{it} + a_3 v_{it} + e_{it} \quad (1.1)$$

where P_{it} represents the value of the business, BV_{it} is the book value of equity, NI_{it} represents net income, the variable v_{it} depicts the "other information" that is available to the market participants and has not been estimated yet (events that still have no effect in the variables BV_{it} and NI_{it}) (Myers, 1999) and the coefficient e_{it} represents the term of statistical shock.

The most common way to implement the Ohlson model in the literature is to bypass the variable v_{it} , which refers to "other information" regarding the prediction (Ohlson, 2001).

$$P_{it} = a_0 + a_1 BV_{it} + a_2 NI_{it} + e_{it} \quad (1.2)$$

Ohlson (2001) explains that the depiction of the model without the variable v_{it} leads us to a more simplistic application of the model, which is that when using it, if we assume that v_{it} is equal to zero, it means that when determining the prices, only the publicly available information of the book value of equity capital and net profits is of great importance. The aforementioned is a strong indication that expectations for future returns, which are not reflected in the current economic circumstances, are irrelevant. This may lead to a potential inaccuracy of findings, concerning the coefficients of the variables included in the model (Hand, 2001; Lo & Lys, 2000a).

However, a significant number of researchers have reacted to these concerns by including several variables, as substitutes, in the "other information." Such examples include the forecasts of financial analysts and the level of compliance or harmonization (Bryan & Tiras, 2007; Goncharov *et al.*, 2006). In addition, a remarkable group of researchers believe that the disclosure of corporate information is guiding the market prices of shares or the predictability of earnings, thereby improving the forecasts of analysts (Lundholm & Myers, 2002; Hope, 2003; Hussainey & Walker, 2009).

Therefore, based on the above results of these studies, the final part of the present research is composed by the following adaptation of the model.

The model has been transformed as follows:

$$P_{it} = a_0 + a_1 BV_{it} + a_2 NI_{it} + a_3 V_{it} + \varepsilon_{it} \quad (1.3)$$

The determination factor/variable of net income (NI) can also be expressed as follows:

$$NI \Rightarrow \frac{NI}{\text{number of shares outstanding}} \Rightarrow \text{EPS}$$

Hence, the determination factor NI can be replaced in the Ohlson model with earnings per share (EPS).

Finally, regarding the determination variable V_{it} , which represents “other information” of the issue under examination, it refers in four separate factors which are expressed as dummy variables (dummy), the sale of goods-products (S goods), the sale of assets (S assets), the effect of the transition to the IAS / IFRS (IFRS) and the impact of the economic crisis (Crisis). The first two refer to the intercompany transactions, which are based on both the repealed IAS 22 as well the IFRS 3 and IAS 24, which are eliminated during the preparation of the consolidated financial statements of the group. In case of no elimination or disclosure of the related party transactions, particularly when trading with a profit margin, it leads to a distortion of the results of the two entities (parent and subsidiary) and hence in possibly wrong business decisions, since the fair and relevant price of the share will be manipulated. The additional variables refer to the importance of the adoption of the IAS / IFRS, considering in the years 2003-2004 (pre-adoption period) and 2005-2013 (post-adoption period). Finally, the variable that determines the economic crisis (Crisis) covers the period 2010-2013. In order to examine the correlation, and hence the effect, on the valuation of accounting numbers, the four dummy variables are dichotomous, receiving the value 1 when firms disclose the exchange of goods and assets, and 0 if they do not disclose such type of transactions for the whole period under consideration (2003-2013). Regarding the dummy IFRS, it takes the value 0 for the years 2003-2004 and for the period 2005-2013 it receives the value 1, trying in this way to test the effect of the IAS / IFRS adoption on the value relevance. Finally, the fourth dummy variable CRISIS, receives the value of 0 for the period 2003-2009, while it is taking the value 1 for the period 2010-2013, trying to examine whether, in addition to the impact of the IAS / IFRS adoption, the financial crisis has affected the value relevance.

Moreover, according to the basic principles of finance, we are aware that the determination factor for an increase or a reduction in a share price is an increase or a reduction in the earnings per share (since due to the fluctuation in the value of profits it is strongly dependent on the dividend policy of each company, which is prefixed by the shareholders as a key factor for the placement of their funds).

Consequently, trying to measure the effect on earnings (the case of selling goods - products - services - fixed assets, with mark - up or discount) from the existence and the possible changes in intercompany transactions, the above model is restated as follows:

$$P_{it} = a_0 + a_1 BV_{it} + a_2 EPS_{it} + a_3 IFRS_{it} + a_4 Sgoods_{it} + a_5 Sassets_{it} + a_6 CRISIS_{it} + a_7 BV_{it} * IFRS_{it} + a_8 BV_{it} * Sgoods_{it} + a_9 BV_{it} * Sassets_{it} + a_{10} BV_{it} * CRISIS_{it} + a_{11} EPS_{it} * IFRS_{it} + a_{12} EPS_{it} * Sgoods_{it} + a_{13} EPS_{it} * Sassets_{it} + a_{14} EPS_{it} * CRISIS_{it} + \varepsilon_{it} \quad (1.4)$$

Where:

P = the share price at 31/3 of each year

BV = book value of a share

EPS = earnings per share

Sgoods = dummy variable which refers to sale of goods-products

Sassets = dummy variable which refers to sale of assets

IFRS = dummy variable which shows the effect of IAS/IFRS adoption on the value relevance

Crisis = dummy variable which shows the effect of the Crisis on the value relevance

BV*Sgoods = slope dummy

BV* Sassets = slope dummy

EPS*Sassets= slope dummy

EPS* Sgoods = slope dummy

BV*IFRS = slope dummy

EPS*IFRS = slope dummy

BV*Crisis = slope dummy

EPS*Crisis = slope dummy

Finally, it encourages the development of future researches, concerning financial disclosure of companies in less developed countries, where the results will be really useful and significant.

3.1.3 Research hypothesis

In accordance with the above literature review regarding the creation of intercompany transactions and with reference to the purpose and the objective of IFRS 3, IAS 24, IAS 27, the research hypotheses of this study can be formulated as follows:

H1-A According to the Greek GAAP the valuation of earnings is lower for firms that sell goods-products to related parties than for firms without such transactions.

***H1-B** According to the IFRS the valuation of earnings does not differ for businesses that sell goods-products to related parties than for firms without such transactions.*

***H2-A** According to the Greek GAAP the valuation of earnings is lower for firms that sell assets to related parties than for firms without such transactions.*

***H2-B** According to the IFRS the valuation of earnings does not differ for businesses that sell assets to related parties than for firms without such transactions.*

An additional factor that has emerged over the last three years, in the case of Greece, concerns the economic crisis. Taking into account the strong influence of the crisis in the equity values of companies, we considered as an important fact to examine the degree of influence in the value relevance. It is important because any effect on the price may be due to the economic crisis and not to the extent/degree of disclosure of the intercompany transactions in the value relevance (as mentioned in the above cases), since several studies (Kiran, 2010; Todd, 2002; Itzhak et. al., 2012) demonstrate the impact of the economic crisis in value relevance. The aforementioned reasons led us to the formulation of the third research hypothesis, through which we want to highlight any potential effect of the crisis on the price. Therefore, the third hypothesis is formed as follows:

***H3.** The impact of the economic crisis on the value relevance is significant.*

3.2 Data

The sample consists of 254 Greek Listed Companies, which have adopted IFRS for the first time in 2004-2005, after the mandatory enforcement by the European Union for all listed companies. More specifically, the period under consideration for which it begins the analysis of the sample is the year 2003, because it is one of the last years that the financial statements of both listed and non-listed companies in the ASE were disclosed by the Greek generally accepted accounting principles.

In the financial year 2005, the disclosure of the financial statements took place under the IAS. That year was a milestone for the IAS, because it is the first year in the disclosure of the financial results became mandatory based on these standards. More specifically, the sample of this research comprises the firms that compose the sum of the Athens Stock Exchange (ASE) companies for the years 2003 to 2013.

Regarding the sample limitations, financial institutions, banks and insurance companies have been excluded due to the individual nature-feature of their

liabilities. Additionally, some companies were excluded, because the financial statements had not been received (first adoption on 14 February 2006, or was under supervision for 2005) (Athianos *et al.*, 2007).

4. Empirical results

4.1 The effects of accounting differences in the numbers of the financial statements

In Table 1 we present the descriptive statistics of the book value, the share price and the earnings per share for the period 2003–2004 (pre-adoption) and 2005–2013 (post-adoption).

Specifically, we observe that the mean and the median of the book value are slightly greater according to IAS / IFRS (2.5765 and 1.5998 respectively for the IAS / IFRS and 0.8962 and 0.6497 respectively for Greek standards). This result is fully consistent with the Greek accounting standards (the Greek accounting standards provide limited recognition of assets, together with the frequent use of forecasts) resulting in a more conservative recognition of results in comparison with the IAS / IFRS, which are using fair value for the recognition of financial instruments and internally generated intangible assets. Moreover, the standard deviation is higher according to the IAS / IFRS (3.2842 for the IAS / IFRS and 1.0412 for the Greek standards), which suggests that the adoption of international accounting standards increases the cross-sectional variation. This is consistent with the orientation of income smoothing of the Greek accounting standards and the orientation in fair value of the IAS / IFRS (because fair value may enlarge the difference between companies). However, the minimum values of the book value (0.0058 according to the IAS / IFRS and 0.0002 for the Greek GAAP) do not show any substantial change, remaining almost constant.

Regarding the earnings per share, the results show greater mean and median under the Greek GAAP (0.1535 and 0.0948, respectively for the Greek standards and 0.0795 and 0.0241, respectively for the IAS / IFRS), but the differences between Greek and international accounting standards are minimal/unconsidered. Additionally, the standard deviation of earnings per share increases, according to the IAS / IFRS (from 0.6784 to 1.0666).

It should be noted that it is not necessary for the book value and earnings per share to change, moving in the same direction, because the book value records the aggregated result of the accounting differences, and earnings per share record the

results during the fiscal year. For instance, a change from the tax-oriented accelerated depreciation method to the straight line method would increase the accounting value of tangible assets and therefore the book value of equity capital, leading to a decrease (increase) of the depreciation expense, resulting in increased (reduced) net profits in the previous (next) stage of the useful life of tangible assets.

Table 1. Descriptive statistics for the periods under consideration

Variables for the period 2003-2004	PRICE	BV	EPS	S GOODS	S ASSETS
Mean	2.6636	0.8962	0.1535	0.4545	0.0629
Median	1.8300	0.6497	0.0948	0.0000	0.0000
Maximum	14.960	3.1187	5.4227	1.0000	1.0000
Minimum	0.2000	0.0002	-3.9600	0.0000	0.0000
Std. Dev.	2.4900	1.0412	1.0666	0.4988	0.2432
Skewness	2.4265	1.0089	1.0963	0.1825	3.5994
Kurtosis	3.1944	3.1608	2.948	1.0333	6.9560
Variables for the period 2005-2013	PRICE	BV	EPS	S GOODS	S ASSETS
Mean	3.2174	2.5765	0.0795	0.9208	0.0543
Median	1.4900	1.5998	0.0241	1.0000	0.0000
Maximum	28.7200	28.8134	5.8200	1.0000	1.0000
Minimum	0.0200	0.0058	-3.9432	0.0000	0.0000
Std. Dev.	4.3379	3.2842	0.6784	0.2700	0.2267
Skewness	2.5782	3.3585	5.4849	-3.1176	3.9330
Kurtosis	10.4498	18.3853	77.4733	10.7195	16.4685

Finally, regarding the value of the share price, it is observed a significant increase in the maximum, between the Greek standards and the IAS / IFRS (from 14.9600 to 28.7200, respectively). This is explained by the reaction in the price, confronting the adoption of the IAS / IFRS as a positive fact, which increases the transparency of recording and the correctness of the financial results of the companies. The other numbers of the variables of the share price remained almost unchanged, when comparing the two periods, which confirms the conservatism due to the income orientation.

According to Table 2, we present the degree of correlation between the variables under consideration, for the periods 2003-2004, and 2005- 2013, separately. Specifically, during the period 2003-2004, we observe that the correlation of the

book value (BV) with the value (Price) is at 0.2385. A similar result is presented through the correlation of earnings per share, with the price at 0.5241. Which implies that probably the two accounting figures (book value and earnings per share) are significantly affecting the configuration of the stock price and hence the market value of the firm. Therefore, the number of reported corporate earnings was, in the period prior to the adoption of IAS / IFRS (2003-2004), a significant accounting figure for the configuration of the value. In contrast, the correlation of the dummy variables, Sgoods and Sassets, with the price we observe that it is at a very low level (0.1161 and 0.0597, respectively). Moreover, we observe that the two key variables (earnings per share and Book value of share) correlate at 0.3413. This result may indicate that the Book value has no effect on reported earnings per share of the company. That fact, of course, is supported by the orientation of the IAS / IFRS, including a special emphasis on the real value of the company "ignoring" any impact on the results and in particular on the profitability. Regarding the degree of correlation between the dummy variables (Sgoods and Sassets) with the Book value, the correlation is also at a low level, suggesting the non-respect of intercompany transactions between them. The above fact continues to exist, in the correlation of the dummy variables (Sgoods and Sassets), with earnings per share (0.0048 and 0.0016, respectively). A similar result exists regarding the correlation of the dummy Sassets with the dummy variable Sgoods at 0.0260.

For the period 2005-2013 when the adoption of IAS / IFRS took place, we observe that the correlation between the book value of the share with the price is at 0.2058. The particular result is at the same level with the correlation of the second most basic variable, the earnings per share of the stock, with the correlation at 0.3840. According to the result we observe that the implementation of IAS / IFRS, may not fully achieve the possibility of avoiding the manipulation of the results, in a further effort to constitute the most important factor in the shaping of the firms' market value. In contrast, the correlation of the dummy variables with the price is low, at 0.0363 for the variable Sgoods and 0.0363 for the variable Sassets. A similar correlation is recorded with the earnings per share.

In addition, we observe that the correlation between the earnings per share and the book value of the stock is at 0.1539. While the correlation of the dummy variables, Sgoods and Sassets, and the Book value remains at a very low level. The result confirms, to some extent, what really happens in the case of intercompany transactions. There is a great possibility that the above result constitutes the motivation for the adoption of new rules during the preparation of

the consolidated financial statements, together with the changes which have occurred since the first implementation until today.

Table 2. Correlation Matrix for the periods under examination

Variables	Price	BV	EPS	Sgoods	Sassets
<i>Panel A: 2003-2004</i>					
Price	1.0000				
BV	0.2385	1.0000			
EPS	0.5241	0.3413	1.0000		
Sgoods	0.1161	0.0850	0.0048	1.0000	
Sassets	0.0597	0.0903	0.0016	0.0260	1.0000
<i>Panel B: 2005-2013</i>					
Price	1.0000				
BV	0.2058	1.0000			
EPS	0.3840	0.1539	1.0000		
Sgoods	0.0363	-0.0574	0.0413	1.0000	
Sassets	0.0363	0.0061	-0.0109	0.0260	1.0000

4.2 Estimation of the Ohlson model

In this part the results are presented through two different ways of analysis. Specifically, in the first section, we present the results of the model based on the pooled method. On the contrary, the second analysis is carried out by the panel method.

Table 3 presents the model, reflecting the entire variables examined in this research, comparing the methods of pooled and panel analysis. More specifically, BV and EPS are both statistically significant at the level $p < 10\%$, while earnings per share have a negative effect on the dependent variable (based on the panel method analysis). In addition, dummy variable CRISIS is also of statistical significance at $p < 1\%$, having also a negative effect on the stock price for both methods of analysis, confirming the research hypothesis 5, based on the economic crisis negatively affecting the value relevance and substantially the equity value of firms. Regarding the dummy variables which refer to the intercompany transactions (disclosures) of goods and assets, they exhibit inverse image under the two testing methods of analysis. More specifically, the dummy variable Sgoods according to the pooled method is not statistically

significant while under the panel method displays a statistical significance at $p < 5\%$. Similarly, the dummy variable *Sassets* is statistically insignificant according to the panel method, and the significance is at $p < 10\%$ for the pooled method of analysis. Furthermore, dummy variable concerning the adoption of IAS / IFRS, is in similar levels ($p < 10\%$) for both methods of analysis. According to the slope dummies $BV * Sassets$, $BV * Crisis$ and $EPS * Sassets$, they are not statistically significant for both methods of analysis. Regarding the slope dummy $EPS * Sgoods$ and $EPS * IFRS$, they have a greater statistical significance based on the pooled method ($p < 1\%$ compared to $p < 10\%$ and $p < 5\%$ versus $p < 10\%$). However, with the application of the panel method, the dummy variable $EPS * IFRS$ has a negative effect on the price. Additionally, with the pooled method of analysis, the dummy variable $EPS * IFRS$ is statistically significant at $p < 5\%$, negatively affecting the dependent variable (price), while under the other method of analysis, it relies on an insignificant level. Furthermore, the adaptability of model ($Adj. R^2$), we observe that it is in a very good level, at 42.55%, for the pooled method, while at 12.53% for the panel method of analysis.

Table 3. Estimations of the least square method concerning the regression model

$$P_{it} = a_0 + a_1BV_{it} + a_2EPS_{it} + a_3IFRS_{it} + a_4Sgoods_{it} + a_5Sassets_{it} + a_6CRISIS_{it} + a_7BV_{it} * IFRS_{it} + a_8BV_{it} * Sgoods_{it} + a_9BV_{it} * Sassets_{it} + a_{10}BV_{it} * CRISIS_{it} + a_{11}EPS_{it} * IFRS_{it} + a_{12}EPS_{it} * Sgoods_{it} + a_{13}EPS_{it} * Sassets_{it} + a_{14}EPS_{it} * CRISIS_{it} + \varepsilon_{it}$$

Variable	Pooled analysis				Panel Analysis			
	Coefficient	Std. Error	t-Statistic	P-value	Coefficient	Std. Error	t-Statistic	P-value
C	2.1571	0.3800	5.675915	0.0000***	2.6289	0.4254	6.1798	0.0000***
BV	0.0196	0.0111	1.372867	0.0764*	0.0141	0.0210	1.5750	0.0797*
EPS	0.6419	0.5646	1.236828	0.0858*	-1.6400	0.9567	-1.5141	0.0867*
IFRS	0.1582	0.3975	1.297973	0.0907*	0.4070	0.4769	1.6437	0.0698*
SGOODS	0.6449	0.4146	1.555515	0.1200	0.9709	0.4937	1.7666	0.0494**
SASSETS	1.2177	0.6832	1.482287	0.0749*	-1.1615	0.8713	-1.1853	0.8530
CRISIS	-1.4481	0.3113	-4.651920	0.0000***	-1.5151	0.3978	-3.8085	0.0001***
BV*IFRS	0.0220	0.0071	3.063152	0.0022**	0.0260	0.0190	1.3642	0.1727
BV*SGOODS	-0.0326	0.0110	-2.963521	0.0031***	0.0089	0.0206	0.4330	0.1650
BV*SASSETS	-0.0067	0.0129	-0.522102	0.6017	0.0261	0.0329	0.7953	0.1265
BV*CRISIS	0.0077	0.0051	1.489793	0.1365	-0.0113	0.0161	-0.7051	0.4808
EPS*IFRS	1.3766	0.4792	2.872733	0.0041***	-0.0923	0.8481	-1.3089	0.0913*
EPS*SGOODS	4.4637	0.4704	9.488695	0.0000***	-1.9322	1.0992	-1.3577	0.0790*
EPS*SASSETS	-0.2870	0.9717	-0.295452	0.7677	1.3841	1.3052	1.0604	0.2891
EPS*CRISIS	-1.5249	0.4040	-3.773961	0.0002***	0.0050	0.9480	1.3053	0.0957*
Adj R-squared		0.4255				0.1253		
Akaike criterion		5.1446				6.0198		

* significance level: $p < .10$, ** significance level: $p < .05$, *** significance level: $p < .01$

Finally, comparing the two methods of analysis with reference to the Akaike info criterion, we would choose the pooled method of analysis since it has the most appropriate coefficient, 5.144 versus 6.019 based on the panel method.

We therefore consider that the results confirm the research hypothesis 1A and B, whereas the dummy S goods, as a fixed term and as a dummy variable, negatively affect earnings per share of firms, particularly in cases where the adoption of IAS / IFRS (dummy IFRS both as a constant term as well as a slope dummy) affects at statistical significant level the value relevance.

The results of the 2nd hypotheses are not consistent with the validity of International Accounting Standards which provide increased recognition of tangible fixed assets, while using low estimates/forecasts. The results constitute an outcome of the conservative nature/feature of the Greek GAAP, characterized by conservatism and focusing on the stabilization of net profits.

The Greek accounting system belongs to the wider France-German accounting system which is characterized by the taxation function (Stakeholder oriented), in contrast with the IAS/ IFRS where the main concern is the investor (Shareholder oriented). Furthermore, we conclude that the related party transactions based on the assets do not significantly affect the value relevance, as we consider that are absorbed from the direct impact on the book value.

Finally, the non-confirmation with the conditions of the hypotheses 2A and B, are probably due to the specificities of this type of intercompany transactions (exchange of assets), and the rarity of this type of disclosure, compared to the exchange/trade of goods / products, according to the Greek GAAP but also according to the IAS / IFRS. Additionally, intercompany exchange of assets is supposed to be a more complex and costly process for businesses, while for these transactions are required elements such as residual value, market value, installer / uninstaller costs, assembly / disassembly costs and proper period of operation.

Regarding the 3rd Hypotheses, it is observed that with the addition of the dummy variable Crisis the final model responds in a satisfactory level, as all the key determining variables, the dummy variables and the slope dummies affect the value relevance in a statistically significant level. Special mention deserves the effect of the dummy variable Crisis both as constant term but also as a slope dummy, affecting negatively the price (dependent variable) but also the EPS on a statistical level of $p < 1\%$. Overall these results confirm the research hypothesis 3, that the economic crisis negatively affects the value relevance and substantially the share value of companies.

Through the above results, we concluded that the addition of the dummy variables in the initial model of Ohlson provides us with the sufficient explanatory

power, as well as the key variables of the model (book value and earnings per share). Additionally, they constitute a useful tool in the determination of the variable V_{it} which incorporates the "other accounting information" in the model of Ohlson (1995), which cannot be determined only by the basic variables.

5. Conclusions

According to the above analysis, it is observed that in the total model the book value (earnings per share) has a greater (lesser) role in the valuation according to IAS / IFRS, compared with the Greek GAAP, this result has a direct impact on the greater emphasis given by the IAS / IFRS on the balance sheet and the fair value and less emphasis is given to smoothing earnings per share.

The Greek accounting standards provide limited recognition of assets, together with frequent use of forecasts, resulting in a more conservative recognition of results compared with the IAS / IFRS, which are using fair value for the recognition of financial instruments and internally generated intangible assets. This is consistent with the orientation of income smoothing of the Greek accounting standards and the orientation in fair value of the IAS / IFRS (because fair value may enlarge the difference between companies).

Basic limitation of this research is the degree of impact from the transition to the IAS / IFRS and therefore the clearing statements, in those statements there is an opportunity for manipulation of the accounting practices, the application of which took place before or during the period of transition. The lack of familiarity with the IAS / IFRS of the authors of the financial statements, is an additional limitation, and may even lead to misinterpretation of the standards requirements, having the effect of not being properly implemented. The degree of compliance with the mandatory disclosures will include almost always a degree of subjectivity, although the necessary procedures were applied. The aforementioned limitations result in the difficulty of reproduction of the particular research by other scholars.

The above results are considered to be reliable, as the customized coefficient ($\text{Adj } R^2$) in the sum of the models is high, a fact that has been particularly emphasized in the research of Kothari and Zimmerman (1995), regarding the usage of prices instead of returns, during the calculation and the testing of variables. Finally, it is worth mentioning that the addition of the dummy variables in the basic model of Ohlson, does not provide us with such a great interpretative ability as the key variables of the model do (book value and earnings per share). In contrast, the dummies constitute a useful tool in the determination of the variable v_{it} which

incorporates the "other accounting information" in the model of Ohlson (1995), which can not be determined only by the basic variables.

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