The Value Relevance of Financial Statements:
The Case of Greece

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Abstract

This dissertation examines the information content of accounting numbers, prepared under the International Accounting Standards (IAS), and contrasts it with the information content, prepared under the Greek Generally Accepted Accounting Principles (Greek GAAP). Using a sample of 46 Greek listed firms and the years 2004 to 2006 as investigation period, this thesis analyses the value relevance of earnings and book values of equity, prepared under both standards. Moreover, emphasis is also being placed on the differences between these two accounting policies. On the one hand, the Greek GAAP is stakeholder oriented and it is regarded as a historical cost accounting model and on the other hand, IAS is shareholder oriented and it is considered to be a fair value accounting model. The empirical results of this dissertation seem to be compatible with these accounting standards’ characteristics. In particular, the book value of equity along with the book value and net income variability are proven to be significantly higher under IAS than under the Greek GAAP. In addition, this dissertation’s findings suggest that, according to IAS, the role of book value is more significant than the role of net income. Finally, it is found that IAS adjustments of book value are more value relevant than the adjustments of net income.

Keywords: Value Relevance; IAS; Greek GAAP; IAS adoption
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1. Introduction

The year 2005 was a landmark in the history of financial reporting, as International Accounting Standards (IAS) were adopted for the first time. IAS, spread by the International Accounting Standards Board (IASB), were considered to be the internationally accepted laws of accounting practice. The listed companies of European Union had to comply with them and prepare their financial statements according to them.

The consequences of many countries’ financial reports, including Greece, were very important. It is worth mentioning that these consequences seem to differentiate companies of countries which are directed to shareholders’ interests, such as the United Kingdom, from companies of countries, such as Germany, France and Greece, which are directed to stakeholders’ interests. In the first accounting model of the shareholder-oriented countries, the government plays the role of the director encouraging the relationships between the firm and the investors by disseminating information to the market. On the contrary, in the second accounting model of the stakeholder-oriented countries, the government is directly involved in the economical activities identifying the amount of tax and the way dividends are distributed. The latter companies face many difficulties in adopting IAS, as IAS seem to be more influenced by the accounting rules of the first mentioned countries.

The term “Value Relevance”, which is the key word in this dissertation, is used to describe the association between accounting amounts and security market values. Many studies have been made concerning the value relevance methodology. Some of them support the value relevance of accounting earnings and others investigate the correlation of stock price with the book value of firm assets. Moreover, there are researchers who declare that, in a more pragmatic approach of an imperfect market, accounting systems have the ability to offer information about “book value and earnings which are complementary, rather than redundant components of equity value” (Ohlson, 1995).

In this dissertation, an attempt is made to investigate whether International Financial Reporting Standards (IFRS) accounting data is associated with higher value relevance than Greek GAAP data. In addition, it is examined whether or not and in
which extent the IFRS are able to measure a company’s value, as this value is represented by the market price of its stock.

IFRS has become a widely applied accounting system targeting at improving financial reporting by providing investors with useful and better information in order to facilitate their decisions. This thesis aims at finding whether this statement is evidenced in Greece by investigating the value relevance of accounting data prepared under IFRS and under Greek GAAP. In particular, the effects of IAS adoption on the financial statements are examined by studying the value relevance of financial statement and searching the rapid rate of changes that IAS adoption causes.

The different accounting policies’ directions between IAS and Greek GAAP make the choice of this country an interesting case for investigation. Additionally, the relatively limited number of value relevant studies having been made in this specific country, as well as the fact that those studies examined some years up to 2005, would tempt someone to move a step forward and examine the IAS adoption effect two years later.

In this direction, 46 Greek firms listed on the Greek Stock Exchange were used as a sample for investigation. All of them adopted IAS for the first time in 2004. These firms’ financial statements were obtained from the Athens Stock Exchange. It is notable that the chosen research design allows a direct comparison of accounting amounts, prepared under the International Accounting Standards (IAS) and also under the Greek Generally Accepted Accounting rules (Greek GAAP), for the same three-year investigation period 2004-2006. The year 2004 is chosen as the first year, because in the previous years there was no accounting amounts prepared under IAS and thus, comparison is unachievable.

This dissertation’s methodology is composed of the following parts. In the first one, differences between IAS and Greek GAAP are analysed. The second part deals with the identification and the analysis of the IAS adoption effects by using two models, the Relative Value Relevance model and the Incremental Value Relevance model. The results of these models’ use show that book value is a better valuation factor in relation to net income when financial statements are reported under IAS than under Greek GAAP and in addition, IAS adjustments to book value are more value relevant than adjustments to net income. In general, these empirical findings are
compatible with the fact that Greek GAAP focuses on the income smoothing and mainly on the prudence principle, which is about the conservatism in the balance sheet. In contrast, IAS focuses on fair values and balance sheet valuation.

By placing emphasis on one single capital market rather than making a cross-country study, makes the control of institutional factors, such as regulatory and listing requirements becomes easier. Therefore, this type of factors can not influence present study’s findings. However, according to Barth, Landsman and Lang (2005), the results may not be representative of other countries.

The remainder of the dissertation proceeds as follows. The next section provides the efforts being made for IAS convergence and harmonisation. Then a value relevance literature review is presented. The third section describes the Greek accounting system framework, the data, the value relevance theories and the methodology. Section 5 refers to the results, concerning the impact of IAS adoption to the value relevance of book value and net income. Finally, this thesis ends with the conclusions.

2. Literature Review

2.1 The way to accounting standards’ convergence

Recent economic globalisation has changed things regarding the use of accounting standards. Taking into consideration that international trade has been extended, foreign stock and debt markets are widely accessible and multinational companies compete on a global scale for resources, investors and creditors, the application of an international accounting system is considered to facilitate companies all over the world. Therefore, the acceptance of a common set of practices in that field appears to be a pressing need. That is why many institutions tried hard to decrease the present dissimilarities between accounting systems.

The most significant of those organisations, the International Accounting Standards Committee (IASC), was established in 1973. Its objective was the assembling of an international set of standards, the acceptance of which, according to IASC’s members, ameliorates the quality of financial statements and makes them
more comparable (IASC, 1995). IASC aims to “work generally for the improvement and harmonisation of regulations, accounting standards and procedures relating to the presentation of financial statements” (IASC, 1995). The statements of International Accounting Standards, published during the period 1973-2001 by the board of the IASC, are called “International Accounting Standards” (IAS). Epstein and Mirza (1997) claim that the IASC’s development happens in three stages: In the first one (1973-1988) a common amount of standards was grown; in the second period (1989-1995) the comparability and development project was carried out; and in the third phase, started in 1995, the most essential standards project has been implemented. In the first years of growth, a set of international accounting standards was set up and codified. The comparability project arose from criticism in comparison with alternatives the IASC standards offered and it led to the amendment of ten standards. Lastly, the International Organisation of Securities Commissions (IOSCO) has promoted the most essential standards project, which aims at the growth of high-level standards capable of being used for reports beyond national frontiers. (Camfferman and Zeff, 2007)

Few years ago the IASC was succeeded by the International Accounting Standards Board (IASB), which has attained greater legality and importance (Choi et al, 2002; Roberts et al, 2002). In April 2001, the latter organisation called its international accounting standards “International Financial Reporting Standards” (IFRS). The 2002 GAAP convergence survey, a valid research concentrated on the initial fifteen members of the EU, demonstrates that 95% of the participating countries pledge to total or partial convergence of their national accounting system with IFRS (BDO et al, 2003).

Undoubtedly, the accounting standards’ progress has been influenced by the recent EU’s decisions about accounting issues. A milestone for IASB was the EU’s decision in 2002 to demand that all EU listed enterprises report their consolidated financial statements according to IFRS from the beginning of 2005. Even in former years, since 2000, there were many occasions, when all listed EU enterprises were compelled to prepare their financial statements using IAS. Particularly, in June 2000, the European Commission published a communication presenting their strategy in this field. This document, which was also backed by the Economic and Finance Ministers
of the EU (ECOFIN) at a gathering a month later, suggested that European listed companies could not have any more the option to use either national accounting standards, United States GAAP, or IAS in reporting their consolidated financial statements. In February 2001, the European Commission presented draft legislation to the parliament and the council of ministers performing the strategy their Communication expounded.

Moreover, EU’s aim was the extension of the above policy since 2006-2007 to all companies. In particular, the Commission proposed that the Member States either require or permit their non-listed enterprises to use in their financial reports the same set of standards as those their listed companies use.

Given that financial reports are regarded as being of vital importance for an efficient capital market, they must be developed with reference to the needs of investors. They must also follow global growth and use those accounting standards that satisfy a globally accepted financial reporting framework. In the countries of EU, two such frameworks are used: IAS and US GAAP.

As the Commission feels unable to affect the development of US GAAP, it regards IAS as an inclusive and recognised set of financial reporting rules, which meet the requirements of the international business community. Another noticeable benefit of IAS is that its growth was not influenced by a single business environment; on the contrary, it was developed according to international prospects. What is more, the Commission, via its key position to organisations (IASC and steering committees), was able to take part in the IASC’s meetings and decisions.

A significant provision in the Commission’s proposal is the creation of a two-tier “endorsement mechanism”, which will supervise the formation of financial reporting requirements, thus making IAS more legitimate in Europe. Additionally, it is considered that the establishment of this mechanism should precede the adoption of new standards by IASB. Therefore, the Commission has decided the creation of a committee at the EU level, which will enable Member States to adopt IAS more easily. The endorsement mechanism will recommend the Commission to make the probable improvements in the EU Accounting Directives.

It is worth mentioning that the EU’s decision concerning IFRS has outstanding implications for the rest of Europe, although academic researchers did not pay the
expected attention to that issue. The new EU member states after 2002 are compelled to carry out the EU’s accounting decisions. In particular, the countries which entered EU in 2004 and the three EU candidate countries followed these instructions.

Certainly, there are a number of obstacles, recognised by the 2002 GAAP convergence survey, that stand in the way of the accounting convergence. The most significant impediments to the expected convergence are the following: inadequate guidance in the first tries of using IFRS, the non-existence of specific transactions (pensions and other post-retirement benefits), the emphasis that national accounting systems give to taxation, and finally, the muddled national accounting standards. Numerous countries were involved with financial instruments and with standards, which concern the impairment of assets, income taxes and employ benefits.

2.2 Harmonisation

There was an intense requirement for international harmonisation of accounting since 1973, when the IASC was formed and it set up the growth of international stock market and international investment. Unquestionably, many benefits arise from the adoption of an international accounting system. In particular, investment risks and cost of capital are minimised worldwide; multiple reporting causes the reduction of costs; the confusion resulting from the use of different accounting measures in countries is eradicated; international investment is supported and international earnings are distributed more effectively (Sharpe, 1998). It was considered that the publication of IASs during the 1970s and 1980s facilitated the international harmonisation. Nevertheless, towards the close of the 1980s, IASC’s action came in for growing disapproval, because there was quite no possibility for comparing accounting information of different countries.

A landmark in the route of harmonisation was the collaboration between the IASC and the IOSCO in 1988, so that an enterprise may list its securities in any foreign market using one particular sort of financial reports complying with IASs (Cairns, 1995). IOSCO has taken action to support and foster the enhancement and quality of IAS for over a decade. Additionally, the two organisations keep cooperating in the following years, so as to find and provide solutions to existing matters and discover fields in which the application of IASs is essential. In 1989, the IASC
proposed a project about the comparability of financial reporting, in order to decrease
the use of alternative accounting systems and make them more reliable and thus, more
acceptable.

To sum up, harmonisation results when all firms use the same accounting
practices in the financial statements reporting. IAS appears to be the needed common
accounting language, the adoption of which provides firms with many profits.
However, there are some obstacles to the way towards harmonisation. Some
academicians, among them Jaruga et al (1996) and Haller (2002), claim that the
historical tie of the continental European countries with their financial reports and tax
regulations impedes the convergence of local accounting standards with IFRS.
(Athianos et al, 2006)

Greece, which is the country of my investigation, adopted accounting
harmonisation when the Law 2992/2002 was enacted. According to this Law, it is
obligatory for all listed Greek companies on the Athens Stock Exchange to prepare
their financial statements according to IFRS from the financial year 2005. (Spathis
Georgakopoulou, 2007)

2.3 Value Relevance term

The term “value relevance” is commonly used to describe the association
between accounting amounts and security market values and, particularly, it can be
regarded as the ability of the summary accounting measures to reflect the underlying
economic value of the firm. The above association was first introduced by Miller and
Modigliani (1966). However, value relevance, as a term, was used some years later by
many researchers. Statements of some of those researchers about the value relevance,
as well as, many studies concerning the value relevance, as it was approached in the
literature, are provided in this thesis.

At first, according to Francis and Schipper (1999), the term “market value
relevance” is used when there is a statistical association between financial information
and prices or returns, and when the accounting–based measures explain market prices
in a good way, under the efficient market assumption that pricing reflects available
information. They above mentioned researchers have also classified some different
perspectives of examining the value relevance of accounting information. These are
the “fundamental analysis view”, “the prediction view”, “the information view” and the “measurement view”. According to the first approach, accounting information leads to stock price changes by capturing values, towards which stock prices change. Concerning the second approach, financial information is value relevant when it includes the variables used in a valuation model or the way to predict those variables. Regarding the information view, accounting information is value relevant when investors use it while they set prices. Lastly, measurement view states that “value relevance is measured by the ability of financial statement information to capture or summarise information, regardless of source, that affects share values” (Francis and Schipper, 1999, p.327).

Additionally, information in financial statements is considered relevant when “it influences the economic decisions of users” by “helping them evaluate past, present, or future events relating to an enterprise” and by “confirming or correcting past evaluations they have made” (IASB, 1989). However, it is important to be mentioned that “market value relevance of accounting information” is significant not only for investors but also for other interested parties and standard setters (Barth et al., 2001).

Concerning value relevance, one has to consider “value relevance of accounting information” and “quality of accounting information” as two separate things. However, the relation between the two is that value relevance is regarded as one of the most essential characteristics of accounting quality. (Francis et al, 2004)

2.4 Value relevance research

There have been made many value relevant studies. According to Holthausen and Watts (2001, p.5), all of these studies can be classified into some categories in order to ease assessing and estimation of value. These categories could be the following. The first category is the Relative association studies which “compare the association between stock market values and alternative bottom line measures”. The second is the Incremental association studies which “investigate whether the accounting number of interest is helpful in explaining value or returns given other specified variables”. Finally, the last one is the Marginal information content studies
which “investigate whether a particular accounting number adds to the information set which is available to investors”.

Moreover, Kothari and Zimmerman (1995) state that the most value relevant studies use price and return models. Return models are those which are regressed on scaled earnings variable, while price models are those regressed on earnings per share. They also claim that price models are preferable in economically terms. However, return models seem to face less severe econometric problems. Lambert (1996), Lys (1996) and Skinner (1996, 1999) are some of the researchers who defined these econometric problems (Holthausen and Watts, 2001). Nevertheless, there are some cases in which the combination of both price and return models seems to be more effective.

Furthermore, some of these studies investigate the value relevance of accounting earnings (e.g. Ball and Brown, 1968; Collins and Kothari, 1989; Kothari and Zimmerman, 1995) while others support that stock price has a correlation with book value of firm assets (e.g. Barth, 1991). First category studies with their models based on earnings and second category with their models based on book values are different valuation’s models positions (e.g. Barth and Landsman, 1995; Solomons, 1995), particularly in case of a complete and perfect market.

Moreover, there are researchers who allege that, in a more pragmatic approach of an imperfect market, accounting systems have the ability to offer information about “book value and earnings which are complementary, rather than redundant components of equity value” (e.g. Feltham and Ohlson, 1995; Ohlson, 1995; Penman, 1997). (Sami and Zhou, 2004). Some of these investigations are presented below.

Ball and Brown (1968) aimed at finding the value of existing accounting income amounts by studying their information quality and timeliness. They hypothesised that when there is no information about a company during a period, then only wide spread market information, which is connected to all firms, is reflected in its rate of return. In order to decide whether the effect of information, which is connected to all firms, can be correlated with information included in the accounting income number of the company, the authors separate the expected and unexpected parts of income alteration. When the expectation of change in income is greater than the real change then it would be an indication that the return of the firm’s securities
would be not as much as it was expected. These results would be evidenced by the residual stock returns of the difference between the actual and the expected income change. The expected income change would be given by the regression prediction using the change in the average income for the market.

\[
\Delta I_{it} = \alpha_{i}t + \beta_{it}\Delta M_{it},
\]

\[
\delta_{it} = \Delta I_{it} - \Delta I_{it}.
\]

The authors concluded that a great part of information, being offered in a year, concerning the firm, was concentrated in the income number of this year. For this reason income number is noticeably important. The annual income report is not considered to provide timely information, because a great part of it is described by more timely vehicles which may contain interim reports. However, the “efficiency of the capital market” depends on the sufficiency of data sources. Thus, the authors are not worried about the fact that the market has found different sources which provide more timely information than the “annual net income”.

Additionally, Collins and Kothari (1989) examined the association between earnings and returns of securities, using the following discounted dividends valuation model:

\[
\text{CARit} = a + b\text{UXit} + eit
\]

\text{CARit} : \text{risk adjusted return for security, UXit} : \text{measure of unexpected earnings.}

The authors assumed that the earnings response coefficient is a result of negative correlation with risk-less interest rates and positive correlation with growth and earnings perseverance. This study forecasted cross-sectional and chronological variation in the degree of price change correlated with changes in earnings. The fact that the amount of price change to earnings change is adjusted to firm size is clarified by the differentiation in the return measurement period. Finally, taking into consideration the pre-mentioned issues, the empirical measurement of the relation between earnings and returns seems to be considerably enhanced.

On the other hand, Barth (1991) researched the measures of pension assets and liabilities, revealed under SFAS 87, to define which of them investors consider when they evaluate a company. He also used a cross-sectional model in order to present the differences between market value and book value.
Finally, Ohlson (1995) introduced and constructed a model of a company’s market value. This model can be used to form the relationship between value and the three accounting variables of earnings, book value and dividends. Ohlson’s model is provided with a number of remarkable characteristics and it can be regarded as the vehicle of realism in accounting. The theory is based on the characteristic that dividends decrease book value but current earnings are not influenced.

2.4.1 Value relevance change through the passage of time

Many studies have been made in order to investigate the value relevance change through the passage of time. Some of those studies are mentioned below and seem to end up with the same results.

In 1997, Collins et al. carried out a research about the changes in the value relevance of earnings and book values, during four decades. They used Ohlson model (1995) and their sample included firms from NYSE, AMEX and NASDAQ. The results were the followings: the combined value of the relevance of earnings and book values seems to have augmented to some extent, contrary to what it was possibly expected. Additionally, the decrease in the value relevance of ‘bottom line’ earnings seems to have been substituted by a boost in the value relevance of book values. Lastly, a great extent of transition from the value relevance of earnings to the value relevance of book values can be interpreted by the rising frequency and importance of non-repeating items, “intangible intensity”, “negative earnings” and company’s size. To sum up, the writers concluded that there are not so strong indications that the value relevance of earnings and book values has altered over the forty years of examination. (Collins et al, 1997)

In 1999, Francis and Shipper recognised that financial statements were not any more so closely related to investors. For this reason, they aimed at finding a better and more appropriate reporting model. However, in the paper of 1999 they focused on examining the allegations that “financial statements have lost their relevance” over time. The sample was comprised by companies listed in exchange markets and also by NASDAQ companies in the years 1952-94. Their analysis showed that earnings were becoming less value relevant and balance sheet and book value information more value relevant during the years of examination. However, at the end of their analysis
and after taking into consideration all the results, the authors stated that there are not clear proofs on whether financial statements have lost their relevance or not. (Francis and Shipper, 1999)

The same year, Ely and Waymire, examined the value relevance of earnings, using a sample of 100 randomly selected companies from the NYSE during the years 1927-93. Companies such as transportation and public services were kept out from the sample. The researchers’ aim was to examine the level of correlation between earnings and the companies’ stock returns and whether some events had a positive impact on the relevance of earnings. Those events were initially, the establishment of the Committee on Accounting Procedure (CAP) in 1939 as the first body of rules setting in the United States, secondly, the Accounting Principles Board (APB , 1959-73) issuance and lastly, the establishment of the Financial Accounting Standards Board (FASB, 1973). The writers concluded that there is not so strong evidence that the establishment of those setting-rules bodies and the reformation of their standard-setting procedure led to an increase in the value of earnings. (Ely and Waymire, 1999)

Recently, a research was made by Thinggard and Damkier (2008) who were concerned about the “New economy age” investors and particularly, about the value of financial statement information (earnings, assets and book value of equity) with which investors were provided. According to these authors, if this value of information is not the one the investors need, then there is time for managers and researchers to act. Improvement in the existent valuation model or creation of a new and more developed model will be the solutions. This paper examines the effect of time to the value relevance of financial statement in Denmark. “EU accounting directives” and an “economic substance-over-legal-form philosophy” are some of the Denmark’s accounting system characteristics during the investigation period. In contrast to some critics’ claims that the value relevance of financial information is decreased over time, in this research, the value relevance is proven to remain stable during the investigation period 1983-2001.

In contrast to the above studies, Gjerde et al (2008) measuring the value relevance of accounting information in Norway during the years 1965-2004 (2004 was the last year of examination because in 2005 most companies reported their financial statements according to IFRS) ended up with different conclusions. The
target of their investigation was firms in the Oslo Stock Exchange. Some events, such as the Accounting Act of 1998, influenced the formation of the Norwegian Generally Accepted Accounting Principles (NGAAP) and the model’s accounting regime transition from a “Continental European creditor and tax oriented model” to an “Anglo American investor oriented model”. The main objective of the authors was to find whether the pre-mentioned events had a positive impact on the value relevance of NGAAP in the passage of time. At the end of the investigation, forecasts were realised, as value relevance was positively affected. For example, the Accounting Act of 1998 and to a smaller degree the Accounting Act of 1977 boosted the value relevance of earnings over time. In this direction, economic value relevance drivers, such as firm size, intensity of losses and others, were used to reassure that the time trend of the remaining total value relevance is augmenting over time. Price and return regressions were used as a vehicle of concluding from data.

2.4.2 Local accounting systems versus IAS

Moreover, many researchers have examined the value relevance of accounting information arisen from the financial statements (F/S), when prepared under their country’s local accounting system, and compared it to the information arisen when F/S were prepared under IAS.

One of these kinds of studies was presented by Harris and Muller (1999). They carried out a research in order to find the value of the market concerning the earnings and book values figures under IAS and under US-GAAP. The results of this research showed that on the one hand, the accounting numbers prepared under IAS had a better association with price per shares than those prepared under US-GAAP and on the other hand, those which were prepared under US-GAAP had a better association with returns than those prepared under IAS.

Another study was carried out by Lin and Chen (2005) who investigated the value relevance of IAS harmonisation in China. This research showed that the accounting numbers were more value relevant under the Chinese GAAP than under the IAS. However it is worth mentioning that the results of this research reflected what happened until 2005.
In the previous years, many studies had been made concerning the relative information accounting earnings could give. These studies examine the differences between the value relevance and timeliness of the accounting earnings under many different accounting standards (Alfrod et al., 1993; Barth et al., 1999).

The results of the above mentioned studies showed that the reported earnings, which derive from the GAAP of the national countries, seem to provide better information than those which derive from the foreign GAAP, as far as their relation to the stock returns is concerned (Bodnar and Weintrop, 1997; Holthausen and Watts, 2001). Reasons of institutional differences in tax law, of corporate governance structure and of intercorporate securities holdings may give an explanation to the results of these studies (Chan and Seow, 1996; Barth et al., 2001).

Moreover, a research about the value relevance of German GAAP and IFRS over the period 2000-2004 has been made by Schiebel (2006). Companies listed on the Frankfurt Stock Exchange and their financial reports published either on IFRS or on German GAAP were used as a sample. Only one country was chosen so as pricing differences among countries could be reduced. The result of this analysis was unexpected. The “consolidated equity book values” of both German GAAP and IFRS are value relevant, but unexpectedly German GAAP seemed to be more value relevant than the IFRS.

Hung and Subramanyan (2007) also examined value relevance in Germany. They used as a sample 80 German industrial firms, which adopted IAS in the period 1998 to 2002, in order to examine the impacts of IAS adoption. The results showed higher “total assets and book value of equity, as well as variability of book value and income” under IAS than under German GAAP. Despite the fact that there is no proof that the value relevance of book value and net income gets better due to IAS adoption, book value is a better factor of valuation compared to net income under IAS than under German GAAP. Moreover IAS adjustments to book value appear more value relevant than adjustments to net income. Finally, it is not clear whether “timeliness and asymmetric timeliness (conditional conservatism)” of IAS income is superior to that of German GAAP income.

Relevant studies were also conducted in Greece and two of them are presented below. The first was published in 2006 by Athianos et al, in order to examine the
impact of IAS early adoption, by a sample of companies, on the financial statements and their value relevance. Their sample was 60 firms listed on the Athens Stock Exchange. Using the research design of Ohlson (1995) and Barth (1991) they compared the accounting numbers reported under the IAS and under the Greek GAAP in the years 2004 to 2005. Their aim was to record the impact of IAS adoption in main financial ratios and also to measure the value relevance of financial statements. Taking into consideration the fact that the Greek accounting system was regarded as a “historical cost accounting model” and IAS as a “fair value accounting model” and that the first was focused on “income smoothing” while the second on “balance sheet valuation” they came to the following conclusions. At first, they realised that “total assets and book value of equity as well as variability of book value and net income are significantly higher under IAS than Greek GAAP”. Moreover, they found that book value was more value relevant under IAS than under Greek GAAP and in contrast, net income was less value relevant under IAS than under Greek GAAP. The last realisation was that although the “IAS adjustments to book value” were value relevant, the results were not the same for “IAS adjustments to net income”. (Athianos et al, 2006)

Next year another survey was available by Bellas et al. who studied the impacts the 2004 transition from the Greek GAAP to the IAS had on the reported financial statements of the Greek listed firms. The investigation years were 2004 to 2005 and the sample was eighty-three firms of the Greek Stock Exchange. This analysis demonstrates that “tangible assets, fixed assets and total liabilities are considerably highly priced under the IAS. Moreover, book value of equity provides more value relevant information under the IAS than under the Greek GAAP. On the contrary, when it comes to net income, the results are opposite. Furthermore, concerning “incremental value relevance”, there was evidence that the difference between book value of Greek GAAP and book value of IAS is not “statistically significant”. However, the difference in net income between the two accounting rules is proven statistically significant. The above results are important due to the fact that the country of examination, Greece, is stakeholder oriented compared to IAS which is shareholder oriented and thus, provides the authors with the consequences of IAS adoption in countries with the same accounting system orientation. (Bellas et al, 2007)
2.4.3 German GAAP versus US GAAP

As it has been already stated in the beginning of this paper, there are two different groups of countries, the shareholder oriented and the stakeholder oriented. This classification is representative of the way these countries respond to IAS adoption. Therefore, the value relevance analysis illustrates these countries’ accounting differences. Harris et al (1994) and Bartov et al (2002) are some of the researchers in Germany who compared the value relevance of US GAAP (stakeholder oriented country) and IFRS to German GAAP (shareholder oriented country) and IFRS. These two studies, which focus on the German accounting system, were preferred to be presented in this paper, because Greece and Germany are both shareholder oriented countries and thus, they seem helpful to my analysis. Some German accounting system features are provided in the beginning of this analysis.

The main purpose of the German accounting system is to maintain equity, protect debt owners and facilitate the estimation of taxable income. Its dominant rule is prudence over financial reporting, which in practice results in the fact that there are no specific requirements and firms must depend on tax law and tax court rulings. Another characteristic that reinforces prudence is the link between earnings and dividends that may present incentive to control reported earnings and achieve the wanted dividend policy, since higher earnings may result in shareholder pressure for more dividends. Observers, such as Richard Breeden (former SEC chairman), point out the deficiency of German rules referring to information disclosed to investors. The German system has been characterised by a tighter relation between tax and financial reporting, with an emphasis on prescriptive regulations as well as on the needs of dept holders and not on equity holders. (Harris et al, 1994)

The main issue that caused the analysis of Harris, Lang and Moller is that NYSE requires from a foreign company wanting to list on US stock exchange. German firms were always in a debate on this issue since NYSE’s’s main concern was the fact that Securities and Exchange Commission (SEC) requirements placed them at a lesser status while other countries’ regulators permit mutual recognition without restatement. German companies, on the other hand, debated on the sufficiency of their disclosures and the probable deception of their investors. One more issue that has troubled analysts is the relations between price, earnings and shareholders’ equity
since there are differences in the measurement of assets, liabilities and reconciliation of shareholders equity. The mainly cause of this situation is the lower value relevance of the latter that has enlarged uncertainty. (Harris et al, 1994)

The German financial analyst society made an effort to provide a way of comparison over time and firms and most importantly over accounting transactions. They developed a system in which adjusted earnings information from German companies, from both their financial statements and internal records, can be prepared and a permanent number of earnings can be offered.

The first result of this analysis is that despite common thought, accounting information is important and crucially associated with stock price and returns in the German market. The earnings of German firms are not as confusing as they appear. However, when one tries to compare the explanatory force of shareholders’ equity for price between Germany and the US, Germany’s one is considerably lower. Another conclusion that derives from this analysis is that the explanatory power of such information is increased in a consolidated status while in the previous state it performs poorly. Moreover, the conservatism in German statements is manifested in the relation between accounting information and stock prices as well as returns for the country’s companies. Furthermore, there is not much evidence of increased explanatory power following the Accounting Directives Law of 1985. This realization leads to the conclusion that the occurred changes had little effect and may have introduced some vagueness in the reported results, as it was pointed out by German business managers. Finally, as it is proven through this analysis, the adjustments that were made led to changes that helped the German financial analyst society (DVFA) in reaching its goal and increase the comparability of earnings in German firms over time.

In 2002, Bartov et al examined the value relevance of earnings reported under the German GAAP, U.S. and International Accounting Standards using returns and earnings regression. The sample was limited in the German companies listed on the country’s Stock Market. Thus, the assumption of previous researchers that prices are similar across markets in different countries was unneeded. Auditors of this article regarded this fact as their contribution. This study’s outcome was anticipated. Previous researchers had come to the same conclusion. Earnings reported under the
U.S. GAAP and IAS (known as shareholder model) are more value relevant than those reported under the German GAAP (recognised as stakeholder model). Additionally, U.S. GAAP, being more strictly defined, offers better information than IAS does. (Bartov et al, 2002)

2.4.4 The effect of a country’s accounting system

Additionally, as it was already mentioned, there are some occasions in which the value relevance of financial reporting is affected by the accounting system of a country and by the factors which are related to it. Ali and Hwang (2000) and Hung (2001) are some of the researchers which investigated the above situations.

Ali and Hwang (2000) used a sample of manufacturing enterprises of 16 countries in the years 1986-95. They showed that countries with “bank oriented financial systems” have less value relevant financial statements than countries which are “market oriented”. Moreover, the value relevance of financial statements is lower for countries in which the private sector does not participate in the formation of standards, in which “Continental model” of accounting is preferred to the “British-American model”, in which tax regulations have a greater impact on financial accounting amounts and finally, in countries where the government offers a small amount of money for audit.

The outcome of this study is strong enough to allow the existence of different measures of value relevance of accounting information. Earnings, accruals and the use of both earnings and book value of equity are variables used to infer the value relevance. In Bank oriented countries, in comparison with market oriented countries, earnings information seems to be better revealed in “leading-period returns” than in “contemporaneous returns”. This characteristic may lead to false correlations between the value relevance measures and the features of the financial system. However, the authors claim that their study’s outcome is capable of using measures of value relevance adapted to this confusing result.

Hung (2001) examined the way the value relevance of financial statements of different countries was affected by accrual accounting. His sample contained industrial enterprises in 21 different countries in the years 1991-1997. He concluded that this method of accrual accounting (which measures the performance and position
of a company by recognising economic events regardless of when cash transactions occur), has a negative impact on the value relevance of accounting performance figures, such as ROE, on countries with “weak shareholder protection”. On the other hand, he observed that countries with “strong shareholder protection” are not negatively influenced by accrual accounting.

2.4.5 Other value relevance studies

In 2002 Goodwin analysed the differences between Australian GAAP and US GAAP, concerning intangible assets and their effect on longitudinal earnings value relevance. In his research on Australian firms, he found that most of them recognise and revalue intangible assets while the American companies do not. (Goodwin, 2002)

In the same direction, Stewart (1997), Lev and Zarowin (1999) focused their research on the recognition of intangible assets and their contribution to the decline of earnings value relevance. Their findings support the idea that earnings value relevance decrease in companies that do not recognise these assets (“non-capitalisers”) while those that proceed with their recognition have no such incidents. Moreover, if one removes the amount of losses, then for the capitalisers no difference appears, while for the non-capitalisers it does appear. One of the most important conclusions from both studies is that the space between the two categories enlarges through time.

Furthermore, according to Goodwin’s research, the coefficients on amortisation level and its change are usually of greater importance for other intangibles and delayed costs. Finally, Goodwin concludes that after removing losses, there is little proof of earnings value relevance decline. It has been noticed that capitalisers that amortise show higher records of earnings value relevance. The level of amortisation and its alteration are mostly significant for unregulated intangibles than delayed costs.

Some authors claim that GAAP financial information can not be used in explaining valuations. Kothari and Shanken (2003) enhanced this statement with their study. They discovered new indications for the economic characteristics of the time-series variation in the coefficients reflecting financial information in prices. Their analysis illustrated that value-relevance regressions can not be used in order to
provide clear and unmistakable results about the relevance and reliability of financial information.

In 2005, Cuijpers and Buijink examined companies listed in the European Union and the characteristics and effects of a non–local GAAP adoption. Internationally Accounting Standards (IAS) and United States GAAP (US GAAP) were used as accounting rules. The sample was EU firms which prepared their financial statements according to non-local GAAP. The investigation year was 1999 and it was chosen so that the results would not be affected by the IAS acceptance (2005) or by IAS adoption acquaintance (2001). Researchers assumed that companies adopted IAS or US GAAP of their own free will, because they expected some profits by this adoption. This study showed that there is a higher potential of such firms to be located in a country, in which financial statements provide less improved financial information and firms have the option to choose between IAS and their country’s GAAP. Authors stated that it is not clear whether or not the voluntary adoption of IAS by the EU companies in 2005 will lead to comparably positive effects and will decrease information asymmetry. (Cuijpers and Buijink, 2005)

In the same year, Barth, Landsman and Lang investigated whether there are different characteristics of financial information between firms adopting IAS compared to those which do not. Testing the accounting quality of these standards the researchers used a sample of 411 firms in 23 countries adopting IAS. The years of investigation were 1994 to 2003. Measures for value relevance, earnings management and timely loss recognition were provided by the authors. In particular, they primarily carried out a process of contrasting the pre-mentioned firms after the adoption of IAS. Then, they carried out a ‘time-series’ test to analyse whether financial information value is enhanced and cost of capital is reduced by IAS adoption. The outcome of their analysis proved that companies which prepared their financial statements according to IAS were privileged as they were provided with more value relevant financial information and had less cost of capital. What is more, there are indications of a development in information’s quality and cost’s of capital reduction with the passage of time. (Barth et al, 2005)

Ballas and Hevas (2005) also made a research in order to test how earnings and book value of equity are regarded by the capital markets. They used as a sample
France, Germany, Netherlands and United Kingdom and applied Ohlson’s model. They estimated the value of how industry sectors can affect the forecasting performance of the model. They found out that the variables they used had consequences in value and also that “country-specific” and “industry-specific” valuation numbers were spread. Nevertheless, they realised that the last type of valuation numbers (industry-specific) is better as it offers a smaller forecasting error when predicting market values.

In 2006, two studies were carried out by Hellstrom and Armstrong et al. Hellstrom investigated the value relevance of financial reporting in Sweden (well-developed market) and in Czech Republic (transition economy) over the period of 1994-2001. The aim of the dissertation was to examine the “validity of the value relevance methodology”. Hellstrom made the assumptions that value relevance of accounting information would be higher in well-developed markets than in transition economies and also that it would be lower in the beginning of the transition period than during its progress. The outcome of the tests verified the forecasted results and thus, it would be an evidence for the validity of the “value relevance methodology”. (Hellstrom, 2006)

Armstrong et al (2006) investigated the way European stock market responds in main incidents which are related to IAS implementation in Europe. The sample was European companies in the period 2002-2004. The writers discovered that investors supported incidents reinforcing the IAS adoption and criticised incidents that impeded this adoption. This was indication that European investors recognised that advantages arising from this implementation compensated for any potential drawbacks.

In 2007, Aleksanyan found that in companies that trade at a premium to book value, the value relevance of earnings and book value is negatively correlated to the level of complexity of the firm’s information environment. On the contrary, for the firms that operate at a discount to book value, this level does not influence the value relevance of earnings and book value. Furthermore, Atiase (1985) and Grant (1980), also concur through their research that there is much greater price adjustment to earnings announcements by small companies than by larger ones. Finally, when the information environment of a company becomes more complex, earnings and book
value in stock valuation seem to decrease. This environment includes industry, government, analyst reports etc, and it is influenced by the company’s capitalisation.

Recently, Gjerde et al (2008), used a sample of “145 restatements from Norwegian Generally Accepted Accounting Principles (NGAAP) to IFRS” from companies which were listed on the Oslo Stock Exchange in Norway. They investigated the association of the IFRS accounting amounts with the stock market values and compared it with the association of the NGAAP amounts with the stock market values. In case of an unconditional comparison of IFRS with NGAAP there was no indication of an increased value relevance of accounting information under IFRS.

They also concluded that when appraising the change in the accounting figures from NGAAP to IFRS, they find indications that the reconcilement adjustments to IFRS are marginally value-relevant because of the fact that there is an increase in the relevance of the balance sheet, as well as in the relevance of the normalised net operating income. Measuring their sample by considering company’s size, intangible asset intensity and profitability, they find that the increased value-relevance of the net operating income results from different reporting of intangible assets. As more intangible assets are capitalised according to IFRS than NGAAP, the authors’ outcome is in agreement with the opinion that capitalising intangible assets is more value-relevant than expending them as exactly they are or via goodwill amortisation. (Gjerde et al, 2008, p.1)

2.4.6 Value relevance theories

The value relevance theories which are incorporated in literature are not always clearly defined. As a result, they have to be drawn from the studies’ research designs. These studies apply two different theories of accounting and standard setting to reach a conclusion. These theories are the “direct valuation theory” and the “inputs-to equity- valuation theory”. In the first theory, accounting earnings are anticipated to either gauge or be jointed together with equity market value changes. Standard setters would focus on the outcome of an investigation of the relative stock price association of alternative accounting earnings or book value of equity instruments. According to the second theory, the key issue of accounting is to make information available to
inputs to valuation models, used by investors in estimating the equity of companies. (Athianos et al, 2006)

2.5 Linkage of Literature Review with this dissertation

Summarising all the above, a lot of studies have been made concerning the value relevance. Some of them are generally about the value relevance as a methodology and others are concerned with the change of value relevance through the passage of time. Moreover, others contrast local accounting systems with IFRS and others compare IAS’s adoption between different countries, with different accounting policies’ direction. The significance of the value relevance methodology and particularly, its implementation in the case of IAS adoption is what derives by all of these studies. In the case of Greece, IAS adoption seems to be an interesting field for investigation due to country’s specific accounting features and the relatively limited number of studies having been made.

3. Methodology

3.1 The Greek accounting framework

The national financial accounting standards are differentiated according to each country’s politics. Ball et al (2000) claim that there are two groups of countries, the “code-law” and the “common law”. This classification focuses on these countries’ legal system origin. The first category, code-law countries, includes countries such as Germany, France and Greece in which governments have a key role in setting up and putting the country’s accounting standards into effect. In this type of legal system the accounting income is regarded as a “pie”, which has to be distributed in the company’s stakeholders including shareholders, creditors, employees and others. Thus, the necessary amount of accounting earnings is influenced by political groups, such as “labour unions, banks and business associations”, which are governments’ representatives. Guenther and Young (2000) also claim that these groups have motives for decreasing accounting income volatility. In particular, the government is
in favour of a constant tax-receipts plan, employees are in favour of “stable profit-sharing plan contributions” and finally, banks are in favour of fixed earnings. Therefore, management has more freedom when applying code-law accounting to ameliorate accounting income, presented in the financial statements. (Spathis and Georgakopoulou, 2007)

Companies in Greece are strongly motivated to decrease taxes. However, in case these companies comply with financial and tax accounting, tax issues may rule the others. As a result, when the companies try to reduce taxes, then there is less probability that underlying economic incidents will be mirrored in financial accounting information.

Greek General Accepted Principles (Greek GAAP) are regarded as the base of Greek accounting, some features of which are presented below. At first, it focuses on the issue of publishing financial statements in compliance with tax rules. The “protection of creditors”, “conservatism” and the “focus on the balance sheet and income statement” also characterise Greek GAAP (Spathis and Georgakopoulou, 2007).

Essential dissimilarities between the Greek GAAP and the IAS are well worth mentioning. At first, the Greek GAAP is distinguished as a stakeholder-oriented and tax-driven system. In contrast, IAS is regarded as a shareholder-oriented system, independent of tax reporting considerations. (Athianos et al, 2006; Bellas et al, 2007; Spathis and Georgakopoulou, 2007). As it was already mentioned, the different accounting systems’ positions imply a lot of effects on accounting standards. The Greek GAAP adopts a “prudent” way of assessing assets and recognising liabilities in order to make the stakeholders’ accord easier. On the other hand, IAS endorses a “true and fair presentation of balance sheets” to assist the investors with their “decision-making” process. Moreover, the Greek GAAP provides managers with the potential of charging assets at the lowest amount which can decrease tax liability. On the contrary, IAS set boundaries to this kind of elasticity. (Spathis and Georgakopoulou, 2007)

All the pre-mentioned characteristics of the Greek accounting system compared to IAS can be useful in giving information about the Greek listed firms and thus, about the sample being used in this investigation.
3.2 Data description

The sample used in the present thesis consists of firms, the shares of which are listed on the Athens Stock Exchange. In particular, these firms belong to the FTSE 20 and FTSE 40 (FTSE 20/FTSE 40 is an index of high capitalisation in which the twenty/fourty biggest market companies are included). All the selected firms have a twelve-month period of use. However, financial, insurance and investment companies are kept out from the initial sample. Thus, the remaining sample used in the value relevance examination is composed of 46 firms. This sample does not include companies with negative book value. The motivation for this exclusion is the fact that these firms have specific accounting policy and regulations in reporting their financial statements (Bellas et al., 2007).

This dissertation’s investigation period is 2004 to 2006. 2004 is chosen to be the first year, since IAS was adopted next year. Therefore, during 2004 many companies made their reports not only under Greek GAAP but also under IAS.

A specific procedure is followed for choosing the final sample and acquiring the necessary accounting data according to both Greek GAAP and IAS. At first, Athens Stock Exchange provides the necessary accounting information/variables for this model (as it will be stated in the next chapter). The chosen observations are net income, book value and market value for the years 2004 to 2006. After finding these firms which report both under IAS and Greek GAAP, the pre-mentioned sample of 46 firms, has already been created. The following step is the use of all the annual reports of the selected firms for the chosen years, data taken from the Athens Stock Exchange. Finally, studying audit reports and notes of financial statements enable this thesis to confirm financial statements reported under IAS and under Greek GAAP.
Figure 1: Distribution of sample firms by industry group according to industry classification scheme of Fama and French (1997).

<table>
<thead>
<tr>
<th>Industry group</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil and Gas</td>
<td>2</td>
<td>3.3</td>
</tr>
<tr>
<td>Chemicals</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Basic resources</td>
<td>6</td>
<td>10.0</td>
</tr>
<tr>
<td>Construction and Materials</td>
<td>6</td>
<td>10.0</td>
</tr>
<tr>
<td>Industrial Goods and Services</td>
<td>5</td>
<td>8.3</td>
</tr>
<tr>
<td>Food and Beverage</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Personal and Household goods</td>
<td>4</td>
<td>6.7</td>
</tr>
<tr>
<td>Health Care</td>
<td>5</td>
<td>8.3</td>
</tr>
<tr>
<td>Media</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Travel and Leisure</td>
<td>7</td>
<td>11.7</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Utilities</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>Banks</td>
<td>10</td>
<td>16.7</td>
</tr>
<tr>
<td>Real Estate</td>
<td>4</td>
<td>6.7</td>
</tr>
<tr>
<td>Financial Services</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Technology</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

3.3 Value relevance models

As it was already mentioned in the literature review, various studies were involved with the value relevant issue. The main types of models, these papers use, are the price models and the return models. However, there are situations in which the combination of both kinds of models is more suitable and thus, the best choice for implementation.

In particular, examples of studies using price models are presented by Collins et al. (1997), Kothari and Shanken (2003), Ballas and Hevas (2005), Athianos et al. (2006), Hung and Subramanyam (2007) and Bellas et al. (2007). On the other hand, Ely and Waymire (1999), Francis and Schipper (1999), Bartov et al. (2002), Armstrong et al. (2006) and Thinggaard and Damkier (2008) preferred applying return models. A combination of both models seems to be the best choice for Harris et al. (1994), Harris and Muller (1999), Lin and Chen (2005) and Gjerde et al. (2008). However, there are some exceptions, such as Cuijpers and Buijink (2005) who used logistic regression models, Schiebel (2006) who used logarithmic models, Hellstrom
(2006) who used price, logarithmic, return and hedge portfolio tests, as well as Ali and Hwang (2000) who used price, returns and hedge portfolio tests.

Some advantages and disadvantages of the main models (price and return) are cited below. At first, price models appear to be an essential instrument of accounting research, but they do not function satisfactorily in the field of examination regarding timeliness of accounting information. Nevertheless, according to literature, they are preferable in equity valuation, in estimating the value relevance of accounting information, including balance sheet records and “other slow varying measures”. Moreover, price models are widely used in evaluating and contrasting different countries’ accounting systems or comparing the value relevance of accounting systems in different time periods. (Jianming, 2007)

According to Ball and Brown (1968), return models are appropriate for examining “the incremental information of accounting measures, the timeliness of earnings and the market efficiency”. However, their success depends on the specification of market expectation. Due to the fact that different companies have dissimilar settings, it is quite difficult to define a general measure of market expectation.

Price models have also some problems concerning their deprived econometric virtues. Easton and Sommers (2003) claim that the problem of heteroscedasticity usually makes a price model to scale. For example, large firms’ pricing errors are likely big. Therefore, when errors are unscaled, the results of the examination may be seriously affected.

Despite the pre-mentioned disadvantages, accounting research still regards price models as of major importance. Price models are considered to be equity valuation models. Furthermore, they are valuable in understanding significant valuation ratios, like price to book or price-to-earnings ratios. These ratios can be regarded as residuals, received by a price model, in which book value of equity or earnings are used as independent variables.

Moreover, price models compared to return models do not necessitate the market expectation specification. By using price models all available information is already reflected either in the balance sheets or on “noisy, slow varying” variables with a lack of “clear event date”. (Jianming, 2007, p.7)
Finally, according to Kothari and Zimmerman (1995), the price model is economically better specified than the return model. Moreover, the price model gives the possibility for a simultaneous examination of the two variables, net income and book value. However, these researchers, like other ones, claim that price specification is vulnerable to econometric problems.

In conclusion, the main focal point of IAS is the balance sheet. This dissertation aims at defining firstly the important book values’ differences that arise when book values are reported under IAS and under Greek GAAP and secondly, the differences of net income reported under the same accounting policies. Therefore, it is essential to investigate the value relevance of both variables. Taking into consideration the pre-mentioned model characteristics as well as this dissertation’s needs, price specification seems the appropriate choice.

3.4 Methodology

Following value relevance literature and specifically being based on the relative studies of Hung and Subramanyam (2007) in Germany and of Athianos et al (2006) and Bellas et al (2007) in Greece, this investigation consists of two main parts. The first one is about the occurrence and the extent of the main accounting differences between IAS and Greek GAAP. In the second part, the “relative value relevance” of the variables, book values and net income, when the latter are reported in the financial statements under Greek GAAP and IAS, as well as the “incremental value relevance” of the same variables and for the same accounting principles are also examined.

A detailed analysis is presented so that all the above issues can be stated more clearly. At first, the differences between Greek GAAP and IAS, along with the degree of these dissimilarities are illustrated by the amounts of book value and net income “reconciliation adjustments”. These adjustments are observed in the annual reports of the examined firms.

In the next part of this analysis an effort is made in order to demonstrate the impact of IAS implementation on the value relevance of book value and net income. Value relevance is determined by the accounting measures and their potential to provide stock prices with information instantly. Moreover, the relative value
relevance of IAS is measured in contrast to the value relevance of Greek GAAP. The outcome of the incremental value relevance of the Greek GAAP and IAS is also investigated. On the one hand, the relative value relevance enables researchers to compare IAS and Greek GAAP by examining if economic information is reflected in the stock prices. In this type of analysis only one accounting system is considered. On the other hand, in the incremental value relevance analysis, the capability of two accounting systems to provide information is examined, regardless of the application of one or two accounting systems.

In the process of defining the way the accounting amounts of balance sheet and income statement were affected by the transition from the Greek GAAP to IAS, descriptive statistics such as mean, median and standard deviation were analysed in addition to IAS and Greek GAAP. By analysing those statistics it was evidenced whether or not there is statistically significance between the two accounting standards (IAS and Greek GAAP). In particular, these “differences in mean were based on pair wise t – tests, in median on signed rank tests, and in standard deviation under the control of distribution with F statistic” (Bellas et al, 2007, p.10).

According to Ohlson (1995), in case the income is neither transitory nor permanent then the appropriate model to be applied is the one in which the price is a function of book value of equity and net income (Collins et al.,1997; Hung and Subramanyam, 2007). In other words, it is a price regression in which book value and net income will be taken as variables. Consequently, the model used to investigate value relevance will be structured as follows:

$$P_{it} = a_0 + a_1 BV_{it} + a_2 NI_{it} + e_t$$

Variables are explained below:

$BV_{it}$: Book value of equity.

$NI_{it}$: Net income.

$P_{it}$: total market value of equity for a firm until the year $t$.

Both variables (net income and book value) are estimated under the two accounting principles (IAS and Greek GAAP) for the examined period 2004 to 2006. Moreover, the above model is used for two different versions of measurement. The
first one is the book value version: \( P_{it} = a_0 + a_1 BV_{it} + e_i \). It provides information about how book value of equity can explain the price or market value of a firm \( i \) for a year \( t \). This is important because it allows the separate examination of the impact of IAS adoption on the value relevance of the balance sheet, which is the main focal point of the “fair value approach. The second version, the net income version \( P_{it} = a_0 + a_1 NI_{it} + e_i \), functions in the same way. This approach also provides an income approach to valuation.

In comparison with the first model (the “Relative Value Relevance”), in which amounts of each accounting system were estimated independently, the second model (the “Incremental Value Relevance”) examines in which extent accounting numbers reported under the Greek GAAP overcome the information provided by the IAS. The second model is structured as follows:

\[
P_{it} = a_0 + a_{11} BV_{GG}_{it} + a_{12} BVDIF_{it} + a_{21} NIGG_{it} + a_{22} NIDIF_{it} + e_{it}
\]

Where:

- \( P_{it} \) = total market value of equity for a firm at year end \( t \).
- \( BV_{GG}_{it} \) = book value of equity under Greek GAAP
- \( BVDIF_{it} \) = book value of equity under IAS - book value of equity under Greek GAAP
- \( NIGG_{it} \) = net income under Greek GAAP
- \( NIDIF_{it} \) = net income under IAS - net income under Greek GAAP

For the analysis of data, E-view econometric program seems to be the appropriate.

4. Empirical results

4.1 Relative value relevance

The results of the value relevant analysis are presented in the first table of this dissertation. The model used and presented in the same table is undeflated, in other
words, it is a model in which the number of shares is used as a deflator. Results are provided for each version of the equation \( P_{it} = a_0 + a_1 BV_{it} + a_2 NI_{it} + e_i \). In particular, results of the book-value, of the income and of their combination are reported separately. For each model two set of regressions are carried out. The first one includes measurement amounts according to Greek GAAP, while the second includes measurement amounts according to IAS. Moreover, differences both of coefficients and of adjusted R-squares of both models (Greek GAAP and IAS) are also mentioned. At this point, it has to be referred that all regression models have the same amount of observations (46 Greek firms). The latter seems to be really important.

As it was stated above, the first step of this thesis’s methodology is the comparison between the value relevance of the variables book value and net income, reported under Greek GAAP and IAS. According to literature, value relevance is measured via the power of accounting measures to explain market values. It is slightly verifiable that IAS improves the value relevance of book value or net income. Only in the case of the book-value model, in which the adjusted \( R^2 \) equals to 9.1\%, the explanatory power under IAS is higher than under Greek GAAP and it is significant at \( p \leq 10\% \). On the contrary, the adjusted \( R^2 \) of the income model equals to -10.4\% and thus, it is evidenced that the explanatory power under IAS is lower than under Greek GAAP. However, this difference is insignificant in conventional levels. Lastly, in the combined book value and net income model, the explanatory power under IAS is lower (adjusted \( R^2 \approx -10.1\%) and it is significant at \( p \leq 5\% \). The latter model helps in providing a better and more complete view of the value relevance of total accounting measures which are reported under two different accounting systems. Summarising all the above, it is worth mentioning that in the book value only model, IAS’ explanatory power is higher and it is significant. On the contrary, IAS has lower explanatory power in the income model (despite the fact that the difference is insignificant at conventional levels) as well as in the combined book value and net income model, in which the difference is significant.

After examining the adjusted \( R^2 \), each model’s coefficients are also observed. In other words, the differences between Greek GAAP and IAS book value, Greek GAAP and IAS net income, Greek GAAP and IAS combined book value and net income, are examined. At first, in the model in which book value is used as the only
independent variable, the coefficient on book value is slightly higher (the difference equals to 0.05) under Greek GAAP. This difference is statistically significant at the 1% level. In this case, the low values reported under Greek GAAP are reflected in the result of higher book values’ coefficients. This result is representative of the Greek accounting regulations’ conservatism in comparison with IAS. On the other hand, in the model in which net income is the only independent variable, the coefficients are higher under Greek GAAP. The difference equals to 2.09 and is significant at the level of 1%. These coefficients outcome is representative of the fact that Greek GAAP income numbers are more smoothed and thus, more steady than those of the IAS (Hung and Subramanyam, 2007). In the final part of this value relevant analysis, the book value and net income model is also examined in order to provide a clearer and more exact view. This model’s contribution is essential as it can be used in order to solve any imbalance problems that may arise from the different relative valuation roles of the book value and net income. Moreover, this model’s pattern of coefficients offers two significant perceptions of the differences between Greek GAAP and IAS. The first one is the extent to which the net income coefficients are different under the two systems. In this thesis, the Greek GAAP income is evidenced to be three times larger than the IAS income and this difference is significant at p≤1. Concerning the second perception, the book value coefficients under IAS are larger than under Greek GAAP and the difference is statistically significant. The result of higher book value and lower net income coefficients under International Standards than under Greek GAAP is compatible with much lower income persistence under IAS. According to Ohlson (1995), there are occasions in which only higher book value coefficients can be generated by the lower income persistence. (Table 1)

4.2 Incremental Value Relevance

The incremental value relevance results are presented in table 2. Following the value relevance tests, the undeflated specification is also adopted. Additionally, using the same analysis as the value relevance tests, the equation \( P_{it} = a_0 + a_{11} \text{BVGG}_{it} + a_{12} \text{BVDIF}_{it} + a_{21} \text{NIGG}_{it} + a_{22} \text{NIDIF}_{it} + e_{it} \) is examined using in the first case book value and in the second case net income as the only independent
variables. Both variables (book value and net income) are used as a final version of this equation.

In the same table, BV_DIF coefficients equal to 6.41 and they are all significantly positive at p=3%. As a result, IAS adjustments to the balance sheet are evidenced with certainty to be incrementally relevant under the book value only model. In contrast, it is recorded that in the income only model the IAS adjustments to net income are evidenced to decrease income value relevance. In particular, the NI_DIF coefficients equal to -0.92 and are significantly negative at p≤1%. The last equation’s version (both variables are used as independent) discloses that the book-value adjustments are incrementally value relevant. The latter is evidenced by the BV_DIF coefficient which equals to 0.37. However, the NI_DIF coefficient which equals to -0.98% and is significantly negative at p≤1% reveals that the difference is insignificant in conventional levels, as a result of the negative income adjustments.

To sum up, it is worth mentioning that in the book only models the book value adjustments are incrementally more value relevant under IAS than under Greek GAAP. On the other hand, in the income only model, the income adjustments are more incrementally value irrelevant under IAS compared to Greek GAAP. As far as the last version of the incremental value relevance model is concerned, book value is more valuable under IAS than under Greek GAAP, while net income is less variable under IAS than under Greek GAAP. This deduction is compatible with the fact that IAS primarily focuses on the balance sheet and on fair values and secondarily on income smoothing. (Table 2)

4.3 Comparison with other studies

In the beginning of the methodology section it was stated that the studies of Hung and Subramanyam (2007) in Germany and of Athianos et al (2006) and Bellas et al (2007) in Greece would be used as a base for this dissertation. Hence, it would be interesting to compare the findings of this dissertation with those of the above studies. All these studies, including this dissertation, conclude that book value is a better factor of valuation in relation to net income under IAS than under German GAAP (in the first study) or than under Greek GAAP (in the other studies). Additionally, IAS
adjustments to book value proved more value relevant than adjustments to net income. A possible explanation of this comparison’s outcome is maybe the fact that all these studies are carried out in countries with stakeholder orientation which is compared to IAS’s orientation.
Table 1: Relative value relevance of book value and net income under Greek GAAP and IAS

Model: $P_{it} = a_0 + a_1BV_{it} + a_2NI_{it} + e_{it}$

<table>
<thead>
<tr>
<th>Model</th>
<th>N=46</th>
<th>BV only models</th>
<th>NI only models</th>
<th>BV and NI models</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Intercept</td>
<td>BV</td>
<td>Adj.R²%</td>
</tr>
<tr>
<td>Greek GAAP coefficients</td>
<td></td>
<td>597</td>
<td>1.47</td>
<td>59.10%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.02)**</td>
<td>(0.00)***</td>
<td>(0.05)**</td>
<td>(0.00)***</td>
</tr>
<tr>
<td>IAS coefficients</td>
<td></td>
<td>529</td>
<td>1.42</td>
<td>68.20%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.03)**</td>
<td>(0.00)***</td>
<td>(0.01)***</td>
<td>(0.00)***</td>
</tr>
<tr>
<td>IAS-GG coefficients</td>
<td></td>
<td>-68</td>
<td>-0.05</td>
<td>9.10%</td>
</tr>
<tr>
<td>p-value</td>
<td>(0.01)***</td>
<td>(0.00)***</td>
<td>(0.01)***</td>
<td>(0.00)***</td>
</tr>
</tbody>
</table>

White Heteroscedasticity Test

<table>
<thead>
<tr>
<th>F-statistic</th>
<th>Greek GAAP</th>
<th>IAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>0.18</td>
<td>0.36</td>
</tr>
<tr>
<td>F-statistic</td>
<td>(0.83)</td>
<td>(0.4)</td>
</tr>
<tr>
<td>F-statistic</td>
<td>0.56</td>
<td>0.7</td>
</tr>
<tr>
<td>F-statistic</td>
<td>(0.2)</td>
<td>(0.12)</td>
</tr>
<tr>
<td>F-statistic</td>
<td>0.72</td>
<td>0.71</td>
</tr>
<tr>
<td>F-statistic</td>
<td>(0.15)</td>
<td>(0.14)</td>
</tr>
</tbody>
</table>

1) Where: P is total market value of equity at year-end; BV is book value of equity; NI is net income, intercept is constant term.
2) Parentheses are used for p-values.
3) ***: At significance level of 1%
   **: At significance level of 5%
   *: At significance level of 10%
4) All numbers are in euro million
Table 2: Incremental value relevance of IAS adjustments to book value and net income

Full model: \( P_{it} = a_0 + a_{11}BV_{GGit} + a_{12}BV_{DIFit} + a_{21}NI_{GGit} + a_{22}NI_{DIFit} + e_{it} \)

<table>
<thead>
<tr>
<th>Model</th>
<th>Intercept</th>
<th>BV_GG</th>
<th>BV_DIF</th>
<th>NI_GG</th>
<th>NI_DIF</th>
<th>Adj. R^2 %</th>
<th>F-statistic</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BV only model</strong></td>
<td>coefficients</td>
<td>460</td>
<td>1.05</td>
<td>6.41</td>
<td></td>
<td></td>
<td>58.5%</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>(0.06)*</td>
<td>(0.00)***</td>
<td>(0.03)**</td>
<td></td>
<td></td>
<td>(0.32)</td>
<td></td>
</tr>
<tr>
<td><strong>NI only model</strong></td>
<td>coefficients</td>
<td>0</td>
<td></td>
<td>13.21</td>
<td>-0.92</td>
<td>97%</td>
<td>0.93</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>(1.00)</td>
<td></td>
<td>(0.00)***</td>
<td>(0.00)***</td>
<td></td>
<td>(0.11)</td>
<td></td>
</tr>
<tr>
<td><strong>BV and NI model</strong></td>
<td>coefficients</td>
<td>0</td>
<td>0.49</td>
<td>0.37</td>
<td>9.81</td>
<td>-0.98</td>
<td>0.40</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>(1.00)</td>
<td>(0.00)***</td>
<td>(0.74)</td>
<td>(0.03)**</td>
<td>(0.00)***</td>
<td>(0.35)</td>
<td></td>
</tr>
</tbody>
</table>

1) Where: BV_GG is book value of equity under GG; BV_DIF equals book value of equity under IAS minus book value of equity under GG; NI_GG is net income under GG; NI_DIF equals net income under IAS minus net income under GG.
2) Parentheses are used for p-values.
3) *** : At significance level of 1%
   ** : At significance level of 5%
   *  : At significance level of 10%
4) All numbers are in euro million
5. Conclusion

This dissertation examines the effects that the transition from the Greek GAAP to IAS has on the Greek listed firms. According to Ball et al. (2000), Greece belongs to the category of the code-law countries, which are stakeholder oriented and their accounting system is directed by tax issues. Hence, this thesis provides an example of a comparison of a stakeholder oriented system (Greek GAAP) with a shareholder oriented one (IAS).

A sample of 46 firms, listed on the Athens Stock Exchange, is used for comparing accounting information under Greek GAAP and under IAS for the same investigation period of 2004 to 2006. In other words, the impact of IAS adoption on the financial statements was examined. In particular, both relative value relevance and incremental value relevance tests are implemented in order to provide the necessary information and lead to real inferences concerning the IAS adoption effects.

The results of this analysis are also presented. At first the book value of equity along with the book value and net income variability are significantly higher under International accounting standards than under the Greek accounting principles. Additionally, by investigating the relative value relevant of accounting information, it is verified that according to IAS the role of book value is more significant than the role of net income. The last result, arisen by the incremental value relevance test, reveals that the IAS adjustments of book value have a greater explanatory power than the adjustments of net income.

This dissertation’s findings are compatible with the concept that internationally accounting standards, orientated towards income smoothing, lay particular stress on the prudence principle. In contrast, IAS, having balance sheet accounts as orientation, focuses on fair values. Despite the fact that the IAS’s fair value orientation increases the book values’ relative significance and reduces the income significance, there are no strong indications that, through the changeover to the new accounting system (IAS), the value relevance of both book value and net income has been augmented.

The model, used in this thesis’ methodology, is a price regression model. As it has already been mentioned, price models may produce econometrical problems. However, in this case, the white heteroscedasticity tests, used in this dissertation, reveal that no problems can arise from choosing this model. Therefore, the results of the examination can not be affected by potential pricing errors.
At this point, it is worth highlighting some limitations of this dissertation. At first, the fact that only Greek firms are included in the sample prohibits the generalisation of the results to other countries. The results can give a more complete sight of the accounting differences of two dissimilar accounting systems, the shareholder oriented and the stakeholder oriented. However, these results can not provide suggestions for countries with a shareholder orientation (i.e. UK). Another limitation is that this examination is regarded as of “low power”. The reason is that the sample is small against a typical market-base analysis. (Hung and Subramanyam, 2007). Finally, as IAS was adopted in 2005, some diversifications of the IAS adoption may have already been absorbed during the years 2005 to 2006.

Summarising all the above and taking the pre-mentioned limitations into consideration, this dissertation’s results set the scene for the obligatory IAS adoption by the Greek non-listed firms. It has been announced that this adoption has to be made at the end of 2008. However, for the present no actions have been made in this direction. This thesis’ contribution is that alerts one to any changes that may occur as a result of this compulsory IAS adoption.
6. References


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