<u>MASTER THESIS</u>

EARNINGS MANAGEMENT DURING THE IFRS IMPLEMENTATION AND THE FINANCIAL CRISIS IN GREECE

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MAY 2014

**ΣΧΟΛΗ ΟΙΚΟΝΟΜΙΚΩΝ
ΕΠΙΣΤΗΜΩΝ ΚΑΙ ΔΙΟΙΚΗΣΗΣ**

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Abstract

As accounting quality cannot be easily observed, researchers have used some measurement models, mostly concerning earnings management, conservatism and value relevance. The most common used measure is earning management that, according to Healy and Wahlen (1999), refers to the managers' ability to use judgement in financial reporting and manipulate information in order to mislead and serve their own interests in general. Healy (1985) is the first to mention earnings management using the term "discretionary accrual".

Greece's economy mandated IFRS reporting for listed entities in 2005, in order to improve accounting information quality. Unfortunately, the financial crisis of 2009, as a consequence of the general crisis in Europe, led the country in recession until nowadays. The question is if these two incidents that characterized the decade, had a significant impact on earnings management of Greek entities or not.

In the present research it has been revealed that in the years after the IFRS implementation total accruals have increased significantly, but in the years after the financial crisis total accruals have decreased even more. Specifically, total accruals after the financial crisis have become lower that such in the years before IFRS implementation. In the same time, in the years after the IFRS implementation discretionary accruals have increased significantly as well, but in the years after the financial crisis discretionary accruals have increased even more, in contrast to the total accruals values of the same period. On the other hand, after the financial crisis managers realized that they could not gain more and they turned their attention into transporting the heavy taxes and the debts into next periods and that may be why discretionary accruals have increased so much, while total accruals noted a decrease.

The theory that Greek companies adopt techniques to manipulate their earnings has been proved. A further research to confirm or not this theory could rely on real earnings management metrics. In order to valuate real earnings management, the variables used could be the abnormal level of CFO, discretionary expenses and the abnormal level of production

costs, as indicators of real activities manipulations. In addition, the year 2014 has been characterized as the year of exit of the recession and beginning of the country's development. Therefore, it would be interesting to examine managers' manipulation in accounting reporting comparing both real earnings management as well as accrual-based management during the period of recession and the period after the recession.

ΔΙΑΧΕΙΡΙΣΗ ΚΕΡΔΩΝ ΚΑΤΑ ΤΗΝ ΕΦΑΡΜΟΓΗ ΤΩΝ ΔΛΠ ΚΑΙ ΤΗΝ ΟΙΚΟΝΟΜΙΚΗ ΚΡΙΣΗ ΣΤΗΝ ΕΛΛΑΔΑ

Περίληψη

Καθώς η λογιστική ποιότητα δεν μπορεί εύκολα να διακριθεί, οι ερευνητές έχουν χρησιμοποιήσει ορισμένα μοντέλα μέτρησης, κυρίως όσον αφορά τη διαχείριση των κερδών, τον συντηρητισμό και την σχέση με την αξία. Το πιο σύνηθες μέγεθος που χρησιμοποιείται είναι η διαχείριση των κερδών, το οποίο, σύμφωνα με τους Healy and Wahlen (1999), αναφέρεται στην ικανότητα των διαχειριστών να χρησιμοποιούν την κρίση τους στην χρηματοοικονομική λογιστική και να χειραγωγούν τις πληροφορίες με σκοπό να παραπλανήσουν και να εξυπηρετήσουν τα δικά τους συμφέροντα. Ο Healy (1985) είναι ο πρώτος που ανέφερε την διαχείριση κερδών χρησιμοποιώντας τον όρο «διαφοροποιούμενα δεδουλευμένα».

Η ελληνική οικονομία υιοθέτησε την λογιστική με βάση τα ΔΛΠ για τις εισηγμένες επιχειρήσεις το 2005, με σκοπό να βελτιώσει την ποιότητα των λογιστικών πληροφοριών. Δυστυχώς, η οικονομική κρίση του 2009, ως επακόλουθο της γενικευμένης κρίσης στην Ευρώπη, οδήγησε την χώρα σε ύφεση μέχρι σήμερα. Το ερώτημα είναι αν τα δύο αυτά γεγονότα που χαρακτήρισαν την δεκαετία είχαν κάποια σημαντική συμβολή στην διαχείριση των κερδών των ελληνικών επιχειρήσεων.

Στην παρούσα έρευνα παρατηρήθηκε ότι τα χρόνια μετά την εφαρμογή των ΔΛΠ το σύνολο των δεδουλευμένων σημείωσαν σημαντική αύξηση, αλλά τα χρόνια μετά την οικονομική κρίση σημείωσαν ακόμα μεγαλύτερη μείωση. Συγκεκριμένα, τα δεδουλευμένα μετά την οικονομική κρίση εμφανίζονται ακόμα πιο μειωμένα σε σχέση με αυτά πριν την εφαρμογή των ΔΛΠ. Ταυτόχρονα, τα χρόνια μετά την εφαρμογή των ΔΛΠ τα διαφοροποιούμενα δεδουλευμένα παρουσίασαν επίσης σημαντική αύξηση, και τα χρόνια μετά την οικονομική κρίση αυξήθηκαν ακόμα περισσότερο, σε αντίθεση με το σύνολο των δεδουλευμένων της ίδιας περιόδου.

Από την άλλη πλευρά, μετά την οικονομική κρίση οι διαχειριστές συνειδητοποίησαν ότι δεν μπορούσαν να κερδίσουν περισσότερα και έτσι έστρεψαν την προσοχή τους στο να μεταφέρουν τους φόρους και τον δανεισμό σε επόμενες χρήσεις και για τον λόγο αυτό τα διαφοροποιούμενα δεδουλευμένα αυξήθηκαν τόσο πολύ, ενώ τα αντίστοιχα συνολικά δεδουλευμένα όχι.

Η υπόθεση ότι οι ελληνικές επιχειρήσεις υιοθετούν τεχνικές για να χειραγωγήσουν τα κέρδη τους έχει αποδειχθεί. Μια περαιτέρω έρευνα για να επιβεβαιώσει ή όχι την θεωρία αυτή θα μπορούσε να βασιστεί στην μέτρηση της διαχείρισης των πραγματικών αποδοχών. Για να εκτιμηθεί η διαχείριση των πραγματικών αποδοχών, οι μεταβλητές που θα χρησιμοποιηθούν θα είναι το ασύνηθες επίπεδο των λειτουργικών ταμειακών ροών, τα διαφοροποιούμενα έξοδα και το ασύνηθες επίπεδο του παραγωγικού κόστους, ως δείκτες για την χειραγώγηση των πραγματικών λειτουργιών. Επιπρόσθετα, το έτος 2014 έχει χαρακτηρισθεί ως έτος εξόδου από την ύφεση και αρχής ανάπτυξης της χώρας. Για τον λόγο αυτό, θα ήταν ενδιαφέρον να ερευνηθεί η χειραγώγηση των διαχειριστών στις λογιστικέ καταστάσεις συγκρίνοντας τόσο την διαχείριση κερδών μέσω των πραγματικών αποδοχών όσο και μέσω των δεδουλευμένων κατά την περίοδο της ύφεσης και την περίοδο μετά την ύφεση.

1. Introduction

Greece's economy mandated IFRS reporting for listed entities in 2005, in order to improve accounting information quality. Unfortunately, the financial crisis of 2009, as a consequence of the general crisis in Europe, led the country in recession until nowadays. The question is if these two incidents that characterized the decade, had a significant impact on earnings management of Greek entities or not.

Globalization of capital markets had a severe impact on the expansion of the credit-crunch/financial crisis in the world. In this context, the financial crisis raised a lot of criticism on IFRS's usage for reporting and the strength of the fair value conception. Some researchers (Turner, 2008) stated that fair value played an insignificant role in the crisis and acted as a "messenger", while others (Magnan, 2009) believed that it had a strong contribution in deepening the crisis. Some other researchers (Leone, 2008) mentioned that the problem was not the fair value model, but the quality of the communication. For example, Leone (2008) argued that: "Using the fair value model without adequate disclosure is neither fair not accurate and it does not provide correct information on the risk of assets".

The IFRS has been introduced in many countries since 2005 as mandatory to improve accounting information quality. Due to the global character of the financial markets, the need of accurate and transparent reporting is obvious. This is why in its objectives, IASB underlines its enactment for the "public interest" and it promotes the use of fair value accounting.

According to Barth et al. (2008) as well as Lang et al. (2003), accounting quality could be measured mainly by earnings management. Earnings management can affect quality of reporting in situations where entities are free to implement accounting regulations or when managers behave under the premises of the "agency theory" (Jensen and Smith, 2000). Accounting reporting takes place on accrual basis, according to which financial performance of an entity is measured taking into consideration economic events and not cash transactions. Earnings management refers to the managers' manipulation of the accounting information, on the basis of discretionary decisions allowed by the standards with the purpose to serve their own personal interests. Overall, however, quality of reporting in accordance to accrual based accounting has improved (Barth et al., 2008).

Greece mandated IFRS reporting in 2005, but according to the "Rule of Law" variable (Kaufmann et al., 2007) that adoption is characterized by a low strength of enforceability and by a high level of differences between local accounting principles and the IFRS standards. Research (Ipino and Parbonetti, 2011) indicates that only countries with a high level of

enforceability presented a reduction in the reporting of discretionary accruals and an increase in real-based earnings management activities under IFRS reporting.[1] There is some evidence that countries with weak reporting enforceability, as in the case of Greece, where companies though audited by Big4, show a decrease in the reporting of discretionary accruals.

Throughout the research we are about to reveal whether the IFRS implementation influenced the earnings management, whether the crisis influenced the earnings management and whether the combination of both IFRS implementation and financial crisis noted any significant difference in earnings management. In order to do so, the total data sample between years of 2002 and 2013 has been split into three categories: 1) data during the pre IFRS implementation period and after that, 2) data before crisis and after and finally 3) data before both IFRS implementation and crisis and after.

As mentioned above, accounting quality could be measured mainly by earnings management and therefore it is being expected that after the IFRS implementation earnings management will decrease. During the financial crisis, earnings management is expected to increase as managers cannot easily achieve their goals and therefore they have more incentives to focus on earnings management activities. The question is: when occurs the interaction between IFRS implementation and financial crisis in which direction earnings management will move?

From the present research it has been revealed that in the years after the IFRS implementation total accruals have increased significantly, but in the years after the financial crisis total accruals have decreased even more. Specifically, total accruals after the financial crisis have become lower that such in the years before IFRS implementation. In the same time, in the years after the IFRS implementation discretionary accruals have increased significantly as well, but in the years after the financial crisis discretionary accruals have increased even more, in contrast to the total accruals values of the same period. As discretionary accruals can translate the managers' manipulation, it becomes clear that after the IFRS implementation managers tend to increase profits, so as they can obtain a certain bonus of success. This could be the reason of the higher value of both discretionary and total accruals. On the other hand, after the financial crisis managers realized that they could not gain more and they turned their attention into transporting the heavy taxes and the debts into

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[1] Ipino and Parbonetti (2011) used the "Rule of Law" variable for 2005 as a proxy for the quality of a country's legal enforcement regime that ranges between -1.01 (India) and 1.97 (Switzerland). Higher values indicate stronger enforcement environments. They examined the interaction between "high law" variable and the type of adopter variable (mandatory or not). The results showed that only mandatory IFRS adopters domiciled in strong legal enforcement experience a reduction in the absolute value of discretionary accruals of 138 basis points (two tailed p<0.001) and an increase in real-based earnings management activities after IFRS become mandatory.

next periods and that may be why discretionary accruals have increased so much, while total accruals noted a decrease.

The following part (part II) involves previous research and literature concerning either earnings management and its measuring or the contribution of IFRS implementation and financial crisis to our research. Part III refers to the hypothesis development while part IV to the research method, including the data sample and the measurements of the variables. All the results are being discussed in part V, and part VI includes the conclusion, any limitations to take into consideration and available area for future research.

2. Literature Review

Studies on the effect of mandatory IFRS adoption indicate enhanced financial reporting, comparability and transparency (Ball, 2006, Christensen et al., 2007, Horton et al., 2010). In order to evaluate the quality of accounting information disclosed, several quality characteristics can be examined, such as understandability, relevance, reliability and comparability (Feleaga et al., 2008). After the financial crisis, the IASB Conceptual Framework practically substitutes reliability by faithful representation and underlines that accounting information usefulness is increased when information is comparable, verifiable, timely and understandable.

Definition of accounting quality is not clear-cut. Barth et al. (2008), defines quality as the ability to reflect a firm's economic performance and position. According to Penman and Zhang (2002) and Watts (2003), the higher the quality information the more investors and/or shareholders are protected from opportunistic managers' behaviour. Ewert and Wagenhofer (2013) define "earnings quality *EQ* as the reduction of the market's uncertainty about the future cash flows due to the reported earnings reported in a period".

As accounting quality cannot be easily observed, researchers have used some measurement models, mostly concerning earnings management, conservatism and value relevance (Barth et al., 2008; Lang et al., 2003). The most common used measure is earning management that, according to Healy and Wahlen (1999), refers to the managers' ability to use judgement in financial reporting and manipulate information in order to mislead and serve their own interests in general. Healy (1985) is the first to mention earnings management using the term "discretionary accrual". According to Jenajean and Stolowy (2008), earnings management can be studied using discretionary accruals and real accruals and analyzing earnings' characteristics to identify any breakeven points. They also concluded that "institutional factors and managers incentives play an important role in shaping the characteristics of financial reporting. These factors are even more important than financial standards considered on an individual basis".

Earnings quality is an important characteristic of financial reporting systems. Despite this great interest, there is little theory examining the consequences of a change in accounting standards and the institutional setting on earnings quality because it is an elusive notion that used to capture a variety of attributes and at the same time many regulatory initiatives and empirical studies are based on intuitive reasoning such as, for example, an earlier recognition of components of future cash flows or a reduction of the discretion for earnings management increase earnings quality (Ewert and Wagenhofer, 2013). According to Ewert and

Wagenhofer (2013): "earnings smoothing incentives by management as crucial for both that earnings management incorporates some of the manager's private information and that, at the same time, it can impede an intended increase in the information content of reported earnings by making the accounting system more informative. The reason is that the manager changes his earnings management behaviour in equilibrium, which makes the bias, and hence reported earnings, less sensitive to her private non-financial information. Collectively, this change can generate lower-quality earnings in the capital market. Another main result is that an increase in the cost of earnings management (e.g., less discretion, higher audit and enforcement quality) reduces earnings quality. This change diminishes the ability of the bias, and reported earnings, to convey private information".

Ipino and Parbonetti (2011) have concluded that after the mandatory IFRS adoption there has been a decrease in accrual-based earnings management and an increase in real earnings management, but only in countries with strong legal enforcement. They also mention that in these countries, "managers substitute real for accrual earnings management changing the real pattern of operations and imposing real costs on the firm in order to report the desired earnings numbers. According to Christensen et al (2013), the liquidity effects around IFRS introduction are concentrated in the European Union (EU) and limited to five EU countries that concurrently made substantive changes in reporting enforcement. They add that there is little evidence of liquidity benefits in IFRS countries without substantive enforcement changes, even when they have strong legal and regulatory systems. Moreover, they underline: "similar liquidity effects for firms that experience enforcement changes but do not concurrently switch to IFRS. Thus, changes in reporting enforcement play a critical role for the observed liquidity benefits after mandatory IFRS adoption. In contrast, the change in accounting standards seems to have had little effect on market liquidity".

The global financial crisis is characterized by the dryingup of liquidity in the banking system (Ivashina and Scharfstein 2010). As a result, firms with more conservative financial reporting are more likely to obtain funding from banks or other creditors during the crisis (Watts and Zuo, 2012). In addition, in the crisis period most firms are likely to suffer underinvestment. Campello et al. (2010) find that the corporate sector is indeed adversely affected by the shortfall in bank lending during the crisis period, and that firms suffer from severe underinvestment. According to Watts and Zuo (2012), firms with more conservative financial reporting experience less negative stock returns during the crisis period and can borrow more and invest more during the crisis. That positive connection between accounting conservatism and the crisis period stock return becomes more obvious when there are greater

ex ante agency costs. As LaFond and Watts (2008) underline: "accounting conservatism's role of constraining managerial opportunism becomes more important when there are greater agency costs".

The fair value accounting related to securitizations was a potential contributor to the financial crisis, as income and gains recorded on the securitization transactions inflated earnings and overstated asset balances (Kothari and Lester, 2011). With the ability to record gains on securitization, management benefitted from higher reported earnings and increasing stock prices, which in turn increased their cash and equity compensation (Kothari and Lester, 2011). According to Kothari and Lester (2011), fair value was implemented poorly, and as a consequence managers' incentives prolonged the risk-taking activity. They also add that it was applied late, which likely led to the aforementioned contagion effects that made matters even worse. Kothari and Lester (2011) underline: "At the time that fair value was actually applied, the extent of the distress within the financial institutions resulted in a "too big to fail" mentality that forced government intervention. If only the fair value standards had been implemented correctly in the first place, then some of the effects of the crisis would have likely been averted." And they conclude: "While standards should allow for innovation and growth, the accounting for firm performance must reflect an accurate portrayal of the historical financial performance and health of a company, with comments related to fair value included only in footnotes or other sections of the financial statements. Such objectives can be obtained through appropriate standards that are accompanied by greater enforcement, sound auditing practices, and commensurate regulatory vigilance. Consideration should be given to these matters, particularly as standards will likely continue to evolve in light of future convergence with IFRS."

In the case of Greece, a country of weak legal enforcement and significant level of ex-ante GAAP and IFRS differences (Ipino and Parbonetti, 2011), the implementation of IFRS has introduced volatility in key income statement and balance sheet measures of Greek firms, but eventually leads to more value relevant accounting measures (Iatridis and Rouvolis, 2010).

According to Guenther and Young (2000), Greek firms obviously have strong incentives to reduce taxes and, consequently, financial accounting information is less likely to reflect economic realities when the firm's goal is to minimize taxes. In addition, the Greek accounting standards imposed rules that gave managers greater flexibility than IFRS for practicing income smoothing methods, such as the capitalization of start-up costs and their amortization within a five year period. Tipouridou and Spathis (2012) mark: "Greece has

often been in the spotlight for the inadequate quality of financial reporting. Before the implementation of International Financial Reporting Standards (IFRS) to all consolidated and individual accounts of publicly traded firms beginning on January 1, 2005, the quality of Greek accounting standards and disclosure practices had been criticized in the European financial press and investors' community. Some of the complaints were that Greek accounting standards allowed firms to use too much discretion, lacked detailed disclosures, were designed to satisfy the information needs of users, permitted reporting that was too heavily influenced by tax avoidance strategies, and had no effective enforcement mechanisms".

According to Spathis and Georgakopoulou (2007), IFRS imposed changes in many technical accounting issues, such as the presentation of financial statements, segment reporting, intangible assets, depreciation, related party disclosures etc., in order to promote a 'true and fair' presentation of financial information. Dimitropoulos et al (2013), found convincing evidence that the implementation of IFRS had as a result less earnings management, more timely loss recognition and greater value relevance of accounting figures, compared to the local accounting standards. They also found that audit quality complements the beneficial impact of IFRS, since companies audited by Big-5 audit firms present higher levels of accounting quality.

3. Hypothesis development

Lin and Shih (2002) studied the earnings management during the recession of 1990-1991 and found high levels of discretionary accruals, as firms corrected their income downwards. In general, they concluded that when there is significantly low or high increase in real gross domestic product, there are also higher levels of discretionary accruals. According to Graham (2005) managers prefer real earnings management to accrual-based, because they are harder to detect.

In the case of Greece, a bank-oriented capital market, which aligns corporate reporting towards the protection of the creditors, while managers pay less attention to minority shareholders (Ballas et al., 2010), Dimitropoulos et al (2013) revealed that the introduction of IFRS in Greek firms resulted in less earnings management, more timely loss recognition, and greater value relevance of earnings and book value of equity compared to the local accounting standards. In their research they evaluated the association between earnings per share and book value of equity per share with stock prices according to both local accounting principles and IFRS.

In this study, it will be researched the impact of IFRS implementation and the financial crisis on accrual-based earnings management in Greece. It will also be estimated the possible effect of financial crisis on the IFRS implementation and the result of this possible interaction in accrual-based earnings management. The research question is:

Does the IFRS implementation, the financial crisis or their interaction have any effect on accrual-based earnings management in Greece?

Earnings management is expected to reduce after IFRS implementation when it refers to accrual-based earnings management, while as it concerns to real earnings management it is expected to increase. After the financial crisis, managers are expected to increase real earnings management, but the accrual-based earnings management is expected to decline. In the period when both financial crisis and IFRS implementation affect earnings management, it is fundamental to identify that interaction between these two factors.

The research questions consists of the relevant hypotheses grouped that follow:

H1: The IFRS implementation in Greece had as a consequence a significant decrease in accrual-based earnings management

H2: The financial Greek crisis of 2009 had a significant impact on accrual-based earnings management
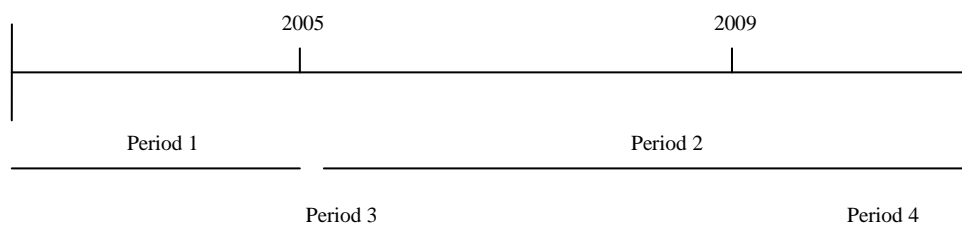
H3: The financial crisis and IFRS implementation had a significant interaction between each other and that interaction had an impact on accrual-based earnings management

4. Research method

41. Sample

The data sample is the one provided by ASE for the Greek firms mentioned for the period of 2002-2013, excluding financial and insurance firms because of their specific accounting rules. The decade will be divided in four smaller overlapping periods: 1. years 2002-2004: before IFRS implementation, 2. years 2005-2013: after IFRS implementation, 3. years 2002-2008: before the financial crisis and 4. years 2009-2013: after the financial crisis.

```
              2005                                    2009
   |_____|_____|_____|
   |                                                            |

         Period 1                      Period 2

   _____         _____
           Period 3                           Period 4
   _____         _____
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The segregation of the sample is formed in a way that for missing firm observation years, it is not necessary to exclude the firm line observations for the whole period. The observations for the other periods can be used if any of the proxy observations for these years is not missing.

Dummy variables are used for these time periods. The IFRS dummy is equal to 0 for the years before 2005 and 1 for the years after. The F.C. (financial crisis) dummy is equal to 0 for the years before 2009 and 1 for the years after.

The sample is composed of 20 firms of the top sectors of Greek economy for the year 2013, according to the data available in ASE financial lists. Moreover, there has been conducted a survey by ICAP (www.icap.gr, 2013) [2], that taking into consideration the total revenue of 2010 and 2011 of the top 40 firms in Greece created the image that can characterize Greek economy and gave the clue of the sectors that play the most significant role.

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[2] ICAP Group is one of the most successful regional Business Services Groups in South Eastern Europe. Today, ICAP Group through its 13 subsidiaries and 1 Joint Venture, provides a wide range of services that are grouped in the following 4 Service Lines: **Credit Risk Services**, **Marketing Solutions**, **Management Consulting** and **People Solutions**.

Taking into consideration the categorization of Greek economy in sectors, the number of entities of each sector has been defined. Moreover, the entities selected for the sample are the most robust of their sector, according to the data available through ASE. The table below presents the final number of entities out of the 20 totally for each sector.

		Number of entities	Percentage of the total
1	*Agriculture*	2	10%
2	*Prosessing*	4	20%
3	*Energy*	3	15%
4	*Constructions*	1	5%
5	*Commerce*	5	25%
6	*CHR[3]*	1	5%
7	*Transportations& Communications*	3	15%
8	*Other services*	1	5%
	Total	**20**	**100%**

Table 1. Number of entities representing each financial Greek sector in a total of 20

The final selection of the firms was made after the exclusion of the outliers (bottom and top of 1% of variables of the absolute value of discretionary accruals) in order to control for extreme values.

All data collected have been edited in SPSS program and have been analyzed all together, per variable and comparing variables in all period samples. Especially the DA (discretionally accruals) variable has been analyzed in the four period samples, so as to compare the results and decide whether the hypothesis can be accepted or not.

4.2 Methodology

Firms' earnings can be materialized in cash flows and accruals, which can be divided into normal nondiscretionary accruals and abnormal discretionary accruals derived from managers' policies.

According to Hoitash et al. (2007), discretionary accruals indicate the degree of biasness imposed by managers into the financial statements. The authors noted that when large discretionary accruals are presented, the earnings quality is low. DeFond and Subramanyam (1998), in order to estimate the discretionary accruals, use the cross-sectional variation of Jones model (1991). According to this variation, normal accruals can be calculated using the change in revenues (ΔREV) and the level of property, plant and

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[3] Cafeterias - Hotels - Restaurants

equipment (PPE). To check on the amount of total accruals that are related to nondiscretionary, it has been used depreciation expense, property, plant and equipment. According to the same authors, the portion that cannot be explained by total accruals is the discretionary accruals.

Manipulation of earnings as manipulation of accruals (earnings management as accrual management)

A general definition that could be given for the profits' manipulation is the potential use of accruals (accruals) with such a way as to generate private benefits for managers of companies. The following relationships are inextricably linked to the understanding of concept of manipulation of earnings as a product of manipulation accruals:

1. Total Accruals = Total Reported Net Income – Operating cash Flows
2. Total Accruals = Total Non- differentiated accruals (normal accruals) + differentiated accruals (discretionary accruals)

While normal accruals are accounting arrangements of on cash flows as dictated by accounting rules and standards, discretionary accruals are subject to the administrations' discretion and therefore its level is indicative of the extent to which reported earnings are beautified.

The usual approach to the calculation of discretionary accruals is by the linear regression of total accruals' variables (proxies) representing normal accruals. Discretionary accruals are considered as the non- interpretable residue of total accruals. In addition to the use of discretionary accruals as a measure for the degree of profit management, many academic studies provide evidence for specific types of accruals and accounting methods used for this purpose. Examples of specific accruals that have been found adopted for the manipulation of results include:

1. Depreciation of a company in the stock market during the import period
2. Provisions for doubtful receivables for banks and insurance companies
3. Provisions for deferred taxes

In order to measure the discretionary accruals, seven competing models have been proposed in the literature the last twenty years. Dechow et al. (1995) indicated the cross-sectional version of Jones model (1991) as the most appropriate to overcome the inherent disadvantage of Jones' model that measured incorrectly discretionary accruals when applied administrative discretion in the recognition of revenue.

The model of Kothari et. al. (2005) attempts to increase the interpretative and deterministic capacity of the original and the modified Jones model developing an alternative model that takes into consideration those connected with the performance of a company discretionary accruals (performance-matched firm's discretionary accruals):

According to that version the discretionary accruals can be estimated as follows:

$$TA_t/Assets_{t-1}=a_o+a_1(1/Assets_{t-1})+a_2((\Delta Rev_t-\Delta AR_t)/Assets_{t-1})+a_3(PPE/Assets_{t-1})+a_4ROA_t+\varepsilon_t$$

(1)

t: the year

TA: total accruals

ΔREv: changes in net revenue

ΔAR: changes in accounts receivables

PPE: property, plant and equipment

a: the coefficients of the regression equation

ROA: return on assets

e: residuals of regression equation

DeFond and Subramanyam (1998) used the variation of Jones (1191) model and estimated the discretionary accruals through the following equation of regression:

$$TA_{it} = \beta_0 + \beta_1 * (\Delta REV_{it}) + \beta_2 * (PPE_{it}) + \varepsilon_{it} \quad (2)$$

Where

TA_{it} = total accruals for firm i for year t

ΔREV_{it} = change in net revenues for firm i for year t

PPE_{it} = gross property, plant and equipment for firm i for year t

ε_{it} = error term

The nondiscretionary accruals can be calculated using total accruals and discretionary accruals, as follows:

$$NA_{it} = TA_{it} - DA_{it} \quad (3)$$

Where:

NA_{it} = nondiscretionary accruals for firm i for year t

TA_{it} = total accruals for firm i for year t

DA_{it} = discretionary accruals

Hribar and Collins (2002), in order to estimate TA_{it}, computed the accruals directly from the cash flow statement under the indirect method using the following model:

$$TA_{it} = EXBI - CFO \quad (4)$$

Where:

TA_{it} = total accruals for firm i for year t

EXBI = earnings before extraordinary items and discontinued operations

CFO = operating cash flows

The operating cash flows are the cash generated by the business, in a certain period through the production and transaction circuit. It is powered by profits, credit increase and liquidation of claims and stocks, while it is weakened by losses, the increase in current assets and credit reduce. From the above, the possibility of valuation of positive or not operating activity of the business through operating cash flows becomes clear.

Negative CFO means inability of the production and transaction circuit to meet the cash needs which itself creates. This deficit is covered with equity exhaustion (charging the same fluid capital and equity), by liquidation of assets or by increasing the short-term bank borrowings. Negative CFO is acceptable in times of significant increase in revenues, so the profitability is not sufficient to finance the increased capital requirements.

The combination of adequate pre-depreciation profits with low or mainly negative CFO is an indication of excessive credit growth by customers, of super storage, of possibility of obsolescence inventory or doubtful receivables. In that case, the possibility of virtual profitability in combination to inventory overstatement should be investigated.

The business image should not be formed only by the profits level, because profits are reinforced by the level of discretionary accruals, which can be influenced significantly by the managers' decision of when to recognize them or manipulate them. CFOs free of accruals can reveal a greater earnings quality, which appears in the accounting statements. A high value of CFO/Net Profits indicator means that the business has adequate liquid assets and that a great

piece of profits stays inside the company. The higher that indicator is, the better are the profits.

The specific variables have been chosen in order to check if any of them is more important for the ability of the business to create future profits.

1. The policy and the business decisions to create liquid assets through the decrease of operating costs, the liquidity policy and the discount policy are reflected enough in the size of CFO

2. The Net Revenues variable express the business policy and decisions to increase its turnover by finding new clients through an opening to new products and an application of new advertising plans

3. The gross property, plant and equipment (PPE) variable reflects the business policy and decisions to handle the fixed assets the best and the most effectively possible and in the same time to save resources through the more rational use of the current assets.

5. Empirical Results

After measuring the total accruals using the equation above (4), the discretionary accruals were estimated using equation (2). Because of lack of data published in years 2002 and 2003 concerning cash flows, it was necessary to calculate the cash flows from operating activities through the indirect method using the data published in the balance sheets. Before IFRS implementation in Greece, firms were not obliged to publish their cash flows statements but only their balance sheets. It was necessary to calculate the cash flows from operating activities for the sample of the period 2002-2004, because the missing values of that period would be too many otherwise.

Cash flows from operating activities are generally calculated according to the following formula:

Cash Flows from Operations = Net income + Noncash Expenses + Changes in Working Capital

Because working capital is a component of cash flow from operations, investors should be aware that companies can influence cash flow by lengthening the time they take to pay the bills (thus preserving their cash), shortening the time it takes to collect what's owed to them (thus accelerating the receipt of cash), and putting off buying inventory (again thus preserving cash).

Balance sheet account changes are the basic building blocks for preparing a statement of cash flows. These changes in assets, liabilities, and owners' equity accounts are the amounts reported in the statement of cash flows, or the changes are used to determine the cash flow amounts (as in the case of the change in retained earnings, which is separated into its net income component and its dividends component).

The error term ε_{it} is used to estimate the discretionary accruals. All variables have been scaled by total assets so as to have more representative results.

The descriptive statistics of this regression are shown below:

Descriptive Statistics

	Mean	Std. Deviation	N
TA	-5,6120E6	9,50897E7	230
DREVENUE	1,7456E7	3,74948E8	230

Descriptive Statistics

	Mean	Std. Deviation	N
TA	-5,6120E6	9,50897E7	230
DREVENUE	1,7456E7	3,74948E8	230
PROPERTY	3,0698E8	8,82244E8	230

Table 2. Descriptive statistics of the discretionary accruals regression analysis
The following table shows the ANOVA summary of the regression.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,293[a]	,086	,078	9,13148E7	,086	10,662	2	227	,000	1,489

a. Predictors: (Constant), PROPERTY, DREVENUE

b. Dependent Variable: TA

Table 3. ANOVA summary of the discretionary accruals regression analysis

According to F-test, the value of F change is 10,662 which is significant for a=0,01. The adjusted R squared of the discretionary accruals regression is 0,078, which means that 7,8% of the variation in total accruals is explained by the change in net revenue and the property, plant and equipment. From the Durbin-Watson value can be concluded that there is no evidence of positive autocorrelation for a= 0,01.

In general, it can be concluded that the change in net revenue and the property, plant and equipment can reveal in some extent (7,8%) the discretionary accruals.

The descriptive statistics for all significant variables for the full sample are presented below:

Statistics

		TOTAL ASSETS	PRE IFRS TOTAL ASSETS	AFTER IFRS TOTAL ASSETS	BEF CRISIS TOTAL ASSETS	AFTER CRISIS TOTAL ASSETS
N	Valid	240	60	180	140	95
	Missing	1	181	61	101	146
Mean		7,7296E8	7,2495E8	7,8896E8	7,2346E8	8,8224E8

Statistics

		TOTAL ASSETS	PRE IFRS TOTAL ASSETS	AFTER IFRS TOTAL ASSETS	BEF CRISIS TOTAL ASSETS	AFTER CRISIS TOTAL ASSETS
N	Valid	240	60	180	140	95
	Missing	1	181	61	101	146
Mean		7,7296E8	7,2495E8	7,8896E8	7,2346E8	8,8224E8
Median		1,3162E8	8,0116E7	1,4894E8	1,0223E8	1,7872E8

Table 4. Descriptive statistics concerning total assets during different periods

From the table above, it is obvious that total assets are larger in the years after the financial crisis, perhaps because of a general gradient rise in total assets during the whole period. The same happens for samples before and after IFRS implementation.

Statistics

		SALES	PRE IFRS SALES	AFTER IFRS SALES	BEF CRISIS SALES	AFTER CRISIS SALES
N	Valid	240	60	180	140	95
	Missing	1	181	61	101	146
Mean		5,9825E8	5,0593E8	6,2902E8	5,7247E8	6,6566E8
Median		4,9038E7	3,9177E7	5,1728E7	4,5953E7	7,5479E7

Table 4. Descriptive statistics concerning total assets during different periods

As far as it concerns the sales, it is presented in the table above, that sales after IFRS implementation are significantly higher than before, and the same occurs for the sales after financial crisis. It is necessary to indicate the decrease in the period sample before crisis. That decrease has been provoked from the data collected which include data from both pre –IFRS period and after IFRS period. Finally, there is a steady increase in sales during the whole period.

Statistics

		TOTAL ACCRUALS	PRE IFRS TOTAL ACCRUALS	AFTER IFRS TOTAL ACCRUALS	BEFORE CRISIS TOTAL ACCRUALS	AFTER CRISIS TOTAL ACCRUALS
N	Valid	230	50	180	130	95
	Missing	11	191	61	111	146

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Mean	-5,6120E6	-1,4539E7	-3,1321E6	-1,5771E6	-1,1186E7
Median	98.819,5000	334664,0000	35676,5000	700500,0000	-195394,0000

Table 6. Descriptive statistics concerning total accruals during different periods

From the table above, it is revealed that in the years after the IFRS implementation total accruals in absolute values have increased significantly, but in the years after the financial crisis total accruals have decreased even more. Specifically, total accruals after the financial crisis have become lower that such in the years before IFRS implementation.

Statistics

		DISCRETIONARY ACCRUALS	PRE IFRS DISCRETIONARY ACCRUALS	AFTER IFRS DISCRETIONARY ACCRUALS	BEFORE CRISIS DISCRETION. ACCRUALS	AFTER CRISIS DISCRETION. ACCRUALS
N	Valid	240	60	180	140	95
	Missing	1	181	61	101	146
Mean		-5,1203E6	-4,0283E6	-5,4844E6	-3,2026E6	-8,4046E6
Median		3,0740E6	3,1982E6	3,0429E6	3,0520E6	3,0338E6

Table 7. Descriptive statistics concerning discretionary accruals during different periods

From the table above, it is revealed that in the years after the IFRS implementation discretionary accruals in absolute values have increased significantly. In the years after the financial crisis discretionary accruals have increased even more, in contrast to the total accruals prices of the same period.

In the chart below it is presented the discretionary accruals fluctuation during the whole period of years 2002-2013.
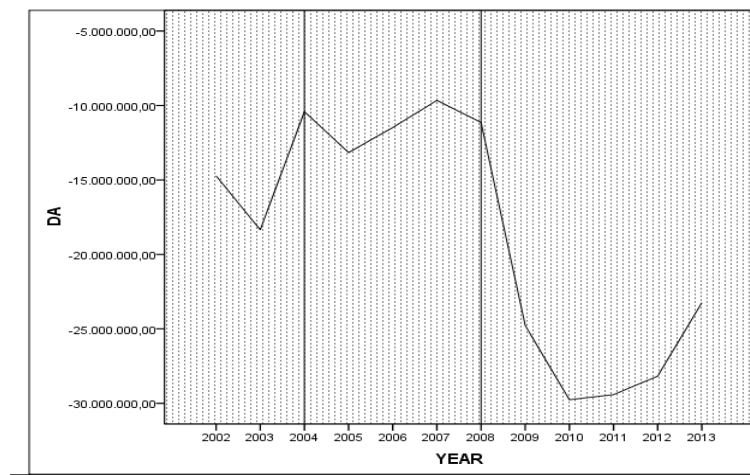
Figure 1. Discretionary accruals fluctuation during different periods

From the chart above, it becomes obvious that in the years 2002-2004, that is before IFRS implementation, discretionary accruals do not have a steady tendency but there is an important final increase in yeas 2004. In the year of adjustments before the total IFRS implementation in 2005, discretionary accruals presented a decrease, but after the implementation of 2005 and until 2008, when the financial crisis started, the overall tendency of discretionary accruals was increasable. Finally, after the year of the financial crisis and until 2010, discretionary accruals decreased dramatically and after 2010 a significant reinstatement has been noted, but did not reach the levels of the years before IFRS implementation.

In the following table, the coefficients output of the discretionary accruals regression with control variables are presented. The correlations between discretionary accruals and the different control variables have been estimated using the Pearson's correlation test.

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	4179028,630	,074		5,613E7	,000					
DREVENUE	-,007	,000	-,096	-3,647E7	,000	-,078	-1,000	-,096	1,000	1,000
PROPERTY	-,031	,000	-,997	-3,805E8	,000	-,995	-1,000	-,997	1,000	1,000

a. Dependent Variable: DA

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Table 8. Coefficient control variables for the discretionary accruals regression

In the table above, it is presented that discretionary accruals and changes in revenue are correlated at -0,078, while discretionary accruals and property, plant and equipment are correlated at -0,995, which are not significant at level a=0,01. The univariate test of discretionary accruals and changes in revenue is not weakened by the control variable property, plant and equipment, because the values are not significant.

In the following table the correlations between the variables are presented:

Correlations

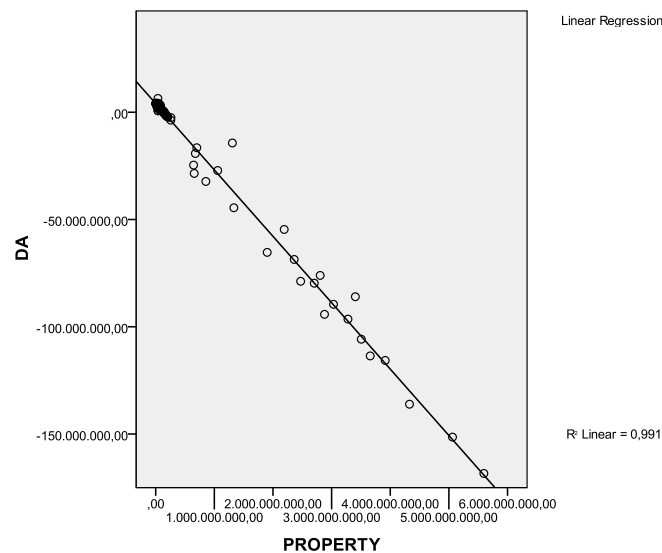|		DA	DREVENUE	PROPERTY
DA	Pearson Correlation	1	-,078	-,995**
	Sig. (2-tailed)		,226	,000
	N	240	240	240
DREVENUE	Pearson Correlation	-,078	1	-,017
	Sig. (2-tailed)	,226		,790
	N	240	240	240
PROPERTY	Pearson Correlation	-,995**	-,017	1
	Sig. (2-tailed)	,000	,790	
	N	240	240	240

**. Correlation is significant at the 0.01 level (2-tailed).

Table 9. Correlation control between variables

In the multivariate test, the correlation between discretionary accruals and changes in revenue is the same as in the univariate test, which is -0,078. From the table above it becomes

obvious that between discretionary accruals and property, plant and equipment there is a high correlation of -0,995, which is significant at a=0,01.

From the following graph, which is a scatter plot between the two variables, it becomes obvious that the discretionary accruals variable and the property, plant and equipment variable have a linear relation

Figure 2. Scatter plot relating discretionary accruals and property, plant and equipment variables

In order to examine whether the changes in revenue variable (control variable) is responsible for the linear relation between discretionary accruals and property, plant and equipment variables, it is useful to estimate the partial coefficient of the correlation. The results ate shown below:

Correlations

Control Variables			DA	PROPERTY
DREVENUE	DA	Correlation	1,000	-1,000
		Significance (2-tailed)	.	,000
		df	0	237
	PROPERTY	Correlation	-1,000	1,000
		Significance (2-tailed)	,000	.
		df	237	0

Table 10. Partial correlation control between variables

From the table above, it is obvious that there is no significance at a=0,01 and therefore it is safe to assume that the changes in revenue do not influence in any way the linear relation between discretionary accruals and property, plant and equipment.

In the table below it is presented that in the pre-IFRS implementation period the mean of discretionary accruals is lower that the one of the post-FRS implementation period.

Group Statistics

	IFRS	N	Mean	Std. Deviation	Std. Error Mean
DA	PRE IFRS	60	-4,0283E6	2,40343E7	3,10281E6
	AFTER IFRS	180	-5,4844E6	2,78444E7	2,07540E6

Table 11. Mean values of discretionary accruals before and after IFRS implementation

It is necessary to check whether this difference in mean is significant at level a=0,01. Therefore, a Levene's test for equality of variance has been is needed to be performed. In the table below the results are shown:

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DA	Equal variances assumed	,365	,546	,362	238	,717	1,45608E6	4,01749E6	-6,45829E6	9,37046E6
	Equal variances not assumed			,390	115,952	,697	1,45608E6	3,73292E6	-5,93748E6	8,84964E6

Table 12. Test for equality of variances of discretionary accruals before and after IFRS implementation

From the results in the table it can be concluded that, as p> 0,01, the means of the values among the periods do not have any significance.

In the same way, in the table below it is presented that in the period before the financial crisis the mean of discretionary accruals is extremely lower that the one of the period after it.

Group Statistics

	F C	N	Mean	Std. Deviation	Std. Error Mean
DA	PRE FC	140	-3,2026E6	2,06307E7	1,74361E6
	AFTER FC	95	-8,4046E6	3,44989E7	3,53951E6

Table 12. Mean values of discretionary accruals before and after the financial crisis

It is necessary to check whether this difference in mean is significant at level a=0,01. Therefore, a Levene's test for equality of variance has been is needed to be performed. In the table below the results are shown:

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
DA	Equal variances assumed	8,035	,005	1,444	233	,150	5,20191E6	3,60145E6	-1,89366E6	1,22975E7
	Equal variances not assumed			1,318	139,598	,190	5,20191E6	3,94567E6	-2,59910E6	1,30029E7

Table 13. Test for equality of variances of discretionary accruals before and after the financial crisis

From the results in the table it can be concluded that, as p=0,005< 0,01, the means of the values of discretionary accruals between the periods before and after the financial crisis are significantly different.

In order to compare discretionary accruals of years before IFRS implementation and after, it is necessary to apply an One-Way ANOVA test for the collected data of each period. First of all, it is important to check whether the values of each group come from normal populations. In the table below the results of the normality test are presented:

Tests of Normality

	IFRS	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
DA	PRE IFRS	,421	60	,000	,361	60	,000
	AFTER IFRS	,447	180	,000	,367	180	,000

a. Lilliefors Significance Correction

Table 14. Test of normality between groups of discretionary accruals before and after IFRS implementation

As shown in the table above, the hypothesis of normality can be safely rejected as p=0,000<<a=0,01.

From the homogeneity of variance test as shown in the table below, it is obvious that there are not significant differences between means of the groups of pre and after IFRS implementation and the condition of homogeneity of variances is satisfied.

Test of Homogeneity of Variances

DA

Levene Statistic	df1	df2	Sig.
,365	1	238	,546

Table 15. Levene's test of homogeneity of variances between groups of discretionary accruals before and after IFRS implementation

As p=0,546>0,01, it is safe to use the ANOVA table in order to decide whether there is a significant difference between the means of discretionary accruals of the groups of pre and post IFRS implementation, that is presented below.

ANOVA

DA

		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	9,541E13	1	9,541E13	,131	,717
	Linear Term Unweighted	9,541E13	1	9,541E13	,131	,717
	Weighted	9,541E13	1	9,541E13	,131	,717
Within Groups		1,729E17	238	7,263E14		
Total		1,730E17	239			

Table 16. ANOVA test between groups of discretionary accruals before and after IFRS implementation

Since p=0,717>a=0,01, it becomes obvious that there is significant difference between the groups, which means that discretionary accruals after IFRS implementation have had a significant decrease as expected. The following graph can reflect the changes of means of discretionary accruals.
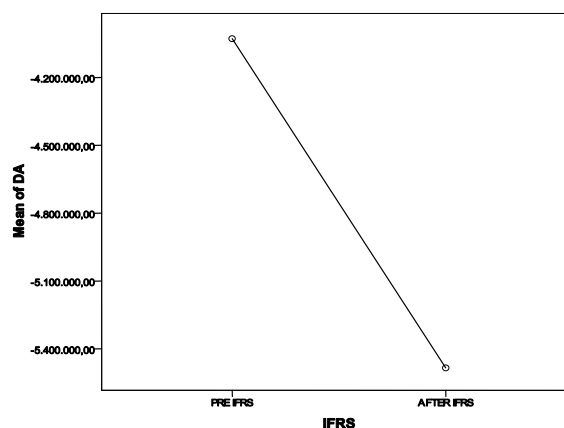

Figure 3. Means plot of discretionary accruals before and after IFRS implementation

In the graph it is presented the significant decrease of discretionary accruals of post IFRS implementation period. In this point, it is undoubtedly a fact that the hypothesis H1 can be accepted. That means that the IFRS implementation in Greece had as a consequence a significant decrease in accrual-based earnings management.

In order to compare discretionary accruals of years before and after the financial crisis, it is necessary to apply an One-Way ANOVA test for the collected data of each period. First of all, it is important to check whether the values of each group come from normal populations. In the table below the results of the normality test are presented:

Tests of Normality

	F C	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
DA	PRE FC	,413	140	,000	,372	140	,000
	AFTER FC	,467	100	,000	,381	100	,000

a. Lilliefors Significance Correction

Table 17. Test of normality between groups of discretionary accruals before and after the financial crisis

As shown in the table above, the hypothesis of normality can be safely rejected as p=0,000<<a=0,01.

From the homogeneity of variance test as shown in the table below, it is obvious that there are significant differences between means of the groups of pre and after the financial crisis period and the condition of homogeneity of variances is not satisfied.

Test of Homogeneity of Variances

DA

Levene Statistic	df1	df2	Sig.
6,764	1	238	,010

Table 18. Levene's test of homogeneity of variances between groups of discretionary accruals before and after the financial crisis

Therefore, the F-test of ANOVA table cannot be used and its place takes the Welch test. The ANOVA table as well as the results of the Welch's test are shown below:

ANOVA

DA

			Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)		1,236E15	1	1,236E15	1,713	,192
	Linear Term	Unweighted	1,236E15	1	1,236E15	1,713	,192
		Weighted	1,236E15	1	1,236E15	1,713	,192
Within Groups			1,717E17	238	7,215E14		
Total			1,730E17	239			

Table 19. ANOVA test between groups of discretionary accruals before and after the financial crisis

Robust Tests of Equality of Means

DA

	Statistic[a]	df1	df2	Sig.
Welch	1,470	1	151,317	,227
Brown-Forsythe	1,470	1	151,317	,227

a. Asymptotically F distributed.

Table 20. Robust tests of equality of means discretionary accruals before and after the financial crisis

Since p=0,227>a=0,01, it becomes obvious that there is significant difference between the groups, which means that discretionary accruals after the financial crisis have had a significant decrease as expected.

The following graph can reflect the changes of means of discretionary accruals.
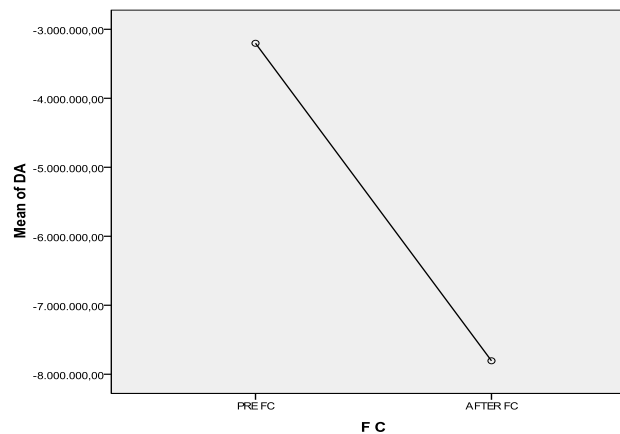
Figure 4. Means plot of discretionary accruals before and after the financial crisis

In the graph it is presented the significant decrease of discretionary accruals after the financial crisis period. In this point, it is undoubtedly a fact that the hypothesis H2 can be accepted. That means that the financial crisis in Greece had as a consequence a significant decrease in accrual-based earnings management.

In order to check whether there has a significant interaction between the variables of IFRS implementation and the financial crisis, a univariate analysis of variance has been performed. First of all, it is important to check whether the values of each variable come from normal populations. In the table below the results of the normality test are presented:

Levene's Test of Equality of Error Variances[a]

Dependent Variable:DA

F	df1	df2	Sig.
3,665	2	237	,027

Tests the null hypothesis that the error variance
of the dependent variable is equal across groups.

a. Design: Intercept + IFRS + FC + IFRS * FC

Table 21. Test of normality between groups of discretionary accruals of financial crisis variable and IFRS implementation variable and their interaction

As shown in the table above, the hypothesis of normality cannot be rejected as p=0,027>a=0,01. In the level of significance a=0,05 the things would be completely different. If the level of significance a=0,05 is chosen, the Two-way ANOVA would be the following:

Tests of Between-Subjects Effects

Dependent Variable:DA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	1,307E15	2	6,536E14	,902	,407	,008	1,805	,205
Intercept	5,782E15	1	5,782E15	7,984	,005	,033	7,984	,803
IFRS	7,158E13	1	7,158E13	,099	,754	,000	,099	,061
FC	1,212E15	1	1,212E15	1,673	,197	,007	1,673	,251
IFRS * FC	,000	0	.	.	.	,000	,000	.
Error	1,716E17	237	7,243E14					
Total	1,792E17	240						
Corrected Total	1,730E17	239						

a. R Squared = ,008 (Adjusted R Squared = -,001)

b. Computed using alpha = ,05

Table 22. Two-Way ANOVA test between discretionary accruals of financial crisis variable and IFRS implementation variable and their interaction

From the results above it becomes obvious that there is no interaction between the discretionary accruals after the IFRS implementation and after the financial crisis.

That means that the financial crisis provoked a decrease in discretionary accruals despite the fact that it happened after the IFRS implementation. In the same concept the IFRS implementation did not have obviously any influence on the discretionary accruals' results that the financial crisis brought. The two incidents did not have any effect to one another.

That was important to be cleared, as the two period samples coincide after 2009, when the financial crisis occurred. Taking all that into consideration, the hypothesis H3 can be safely rejected

6. Conclusions

According to literature, the techniques used for the manipulation of financial results are common in different countries. In Greece the most popular techniques seem to be based on the subjectivism concerning the selection of a) the time of accounting for revenue and expenses of the period and b) the way of valuating the inventories.

In the present research, first of all, it has been clarified that 7,8% of the variation in total accruals is explained by the change in net revenue and the property, plant and equipment, which consists a significant percentage. In other words, the change in net revenue and the property, plant and equipment can reveal in some extent the discretionary accruals.

From the descriptive statistics it can be noted that total assets are larger in the years after the financial crisis, as well as before and after IFRS implementation perhaps because of a general gradient rise in total assets during the whole period of 2002-2013. After the financial crisis in Greece, the companies had to endure a strong taxation as well as debts that could not pay off. In that sense, the increase in total assets does not mean liquid assets but doubtful requirements. After the IFRS implementation, companies were obliged to form a clear statement of their fixed assets and their values. This form of fixed assets depreciation maybe is the reason for the increase in total assets.

As far as it concerns the sales, after IFRS implementation they appear to be significantly higher than before, and the same occurs for the sales after the financial crisis. It is necessary to indicate the decrease in the period sample before crisis. That decrease has been provoked from the data collected which include data from both pre –IFRS period and after

IFRS period. Finally, there is a steady increase in sales during the whole period. Especially after the financial crisis, the companies revealed a tendency to increase their virtual profits in order to achieve better borrowing conditions from the banks, as during that period they had to endure too many difficulties in their attempt to ensure sufficient funds.

From the present research it has been revealed that in the years after the IFRS implementation total accruals have increased significantly, but in the years after the financial crisis total accruals have decreased even more. Specifically, total accruals after the financial crisis have become lower that such in the years before IFRS implementation. In the same time, in the years after the IFRS implementation discretionary accruals have increased significantly as well, but in the years after the financial crisis discretionary accruals have increased even more, in contrast to the total accruals values of the same period. As discretionary accruals can translate the managers' manipulation, it becomes clear that after the IFRS implementation managers tend to increase profits, so as they can obtain a certain bonus of success. This could be the reason of the higher value of both discretionary and total accruals. On the other hand, after the financial crisis managers realized that they could not gain more and they turned their attention into transporting the heavy taxes and the debts into next periods and that may be why discretionary accruals have increased so much, while total accruals noted a decrease.

Something interesting is the fact that between discretionary accruals and property, plant and equipment there is a significantly high correlation of a linear relation. At the same time it has been shown that the changes in revenue do not influence in any way the linear relation between discretionary accruals and property, plant and equipment.

Concerning the differences of means of discretionary accruals, it has been presented the significant decrease of discretionary accruals of post IFRS implementation period, which means that the IFRS implementation in Greece had as a consequence a significant decrease in accrual-based earnings management. In the same way, it has been presented the significant decrease of discretionary accruals after the financial crisis period. That means that the financial crisis in Greece had as a consequence a significant decrease in accrual-based earnings management.

Investigating the interaction between the discretionary accruals after the IFRS implementation and after the financial crisis it has become obvious that there is no interaction between them. That means that the financial crisis provoked a decrease in discretionary

accruals despite the fact that it happened after the IFRS implementation. In the same concept the IFRS implementation did not have obviously any influence on the discretionary accruals' results that the financial crisis brought. The two incidents did not have any effect to one another. That was important to be cleared, as the two period samples coincide after 2009, when the financial crisis occurred.

Through the present research the theory that Greek companies adopt techniques to manipulate their earnings has been proved. A further research to confirm or not this theory could rely on real earnings management metrics. In order to valuate real earnings management, the variables used could be the abnormal level of CFO, discretionary expenses and the abnormal level of production costs, as indicators of real activities manipulations. In addition, the year 2014 has been characterized as the year of exit of the recession and beginning of the country's development. Therefore, it would be interesting to examine managers' manipulation in accounting reporting comparing both real earnings management as well as accrual-based management during the period of recession and the period after the recession.

7. References

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