DID IFRS REPORTING BY UK FIRMS REDUCE EARNINGS MANAGEMENT?

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Abstract

This paper investigates the effect of reporting under International Financial Reporting Standards (hereafter IFRS) versus reporting under UK GAAP on earnings management in the UK. Prior studies find mixed evidence regarding the effect of voluntary and mandatory adoption of IFRS on earnings quality. I test whether the effect of reporting under IFRS on earnings management is sufficient to overcome earnings management incentives. Furthermore, I test whether the effect of IFRS reporting is conditional on audit quality surrogated by audit firm size. I build the analysis on measures of discretionary accruals and earnings benchmark tests. I find evidence that reporting under IFRS generally reduces levels of earnings management and furthermore, the mitigating effect of IFRS is stronger for income decreasing than for income increasing earnings management. In addition, I find that audit quality plays a key role in IFRS reporting, with only firms audited by big four auditors having a significant IFRS reporting effect.

Keywords: Earnings Management, Discretionary Accruals, Accounting Standards, IFRS, Audit Quality

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1. Introduction

The purpose of this paper is to empirically examine the effect of financial reporting under International Financial Reporting Standards[19] (hereafter IFRS) compared with UK GAAP on earnings management in the UK. Further evaluation of the effect of IFRS on earnings management is timely given the recent adoption of IFRS in many countries including mandatory IFRS adoption in Europe since 2005 according to the regulation issued by the European Parliament (1606/2002/EC). Moreover, prior literature on IFRS provides mixed evidence regarding its effect on earnings management (e.g. Van tendeloo and Vanstraelen, 2005, Barth et al., 2008, Jeanjean and Stolowy, 2008). IFRS was issued by the International Accounting Standards Board (IASB) which has the objective of developing a common set of internationally acceptable high quality accounting standards (Barth et al., 2008). In the UK, different rules were adopted for companies listed on the London Stock Exchange in its main market and the Alternative Investment Market (AIM). All group companies listed on the London Stock Exchange main market were required to prepare their consolidated financial statements under IFRS for the financial periods starting January 2005; whereas, AIM group companies did not have to comply until January 2007[20]. Other individual listed companies and private companies have the choice between reporting under UK GAAP or IFRS.

This paper contributes to the relevant literature in several ways. Firstly, I investigate the effect of IFRS reporting on earnings management using data from the UK. This allows this study to test the effect of the reporting of IFRS on earnings management in a setting where it was not allowed to use IFRS prior to 2005. Moreover, most recent studies tend to focus on IFRS adoption as an event study and are usually limited to the adoption year or one year after. However, I compare reporting under IFRS versus reporting under UK GAAP to test whether earnings management levels are lower for companies using IFRS versus those using UK GAAP. This implies testing whether a perceived higher quality set of accounting standards (IFRS) can play a role in mitigating earnings management practices. Most prior studies investigated the effects of IFRS reporting in a cross-country setting. However, Ball et al. (2003) argue that, "focus on standards is substantially and misleadingly incomplete because financial reporting under a given set of standards is sensitive to the

[19] The term IFRS is used to include International Accounting Standards (IAS) and International Financial Reporting Standards.

[20] See the Companies Act 1985 (International Accounting Standards and other Accounting Amendments) Regulations 2004

incentives of the managers and auditors responsible for financial statements preparation" (Ball et al., 2003, P.236). Furthermore, Schipper (2005) argues against pooling firm-year observations from different countries unless incentives are stable and suggests holding incentives constant and allowing standards to vary in order to achieve unbiased results through a homogeneous sample.

Secondly, to the best of my knowledge, none of the previous studies test the differential effect of IFRS reporting on income increasing versus income decreasing earnings management. The prior literature uses the absolute value of discretionary accruals as a measure of earnings management (Van tendeloo and Vanstraelen, 2005) or uses other measures, such as the ratio of small profits to small losses (Jeanjean and Stolowy, 2008). However, I argue that IFRS reporting might have a different effect on earnings management levels depending on the direction of managing earnings. Due to the larger incentives to manage earnings upwards to increase net income (e.g. Peasnell et al., 2005), I expect to find the mitigating effect of IFRS reporting to be stronger for income decreasing earnings management than for income increasing earnings management. Therefore, the evidence reported in this paper fills a gap in the literature with regard to the mitigating effect of IFRS on income increasing versus income decreasing earnings management. Hence, it adds to our knowledge of whether high quality accounting standards are sufficient to improve earnings quality and overcome earnings management incentives.

Thirdly, I argue that the benefits of high quality accounting standards are more likely to be dependent on audit quality due to the greater knowledge and experience of high quality audit firms. None of the previous studies have investigated whether the effect of IFRS reporting on earnings management is conditional on audit quality. Therefore, I test whether IFRS reporting has the same mitigating effects on earnings management for firms audited by big four versus those audited by non-big four firms.

Using a sample of UK companies from 2003-2007, the empirical results reported in this paper show a significant negative association between IFRS reporting and all of the measures of earnings management used in this study which suggests that the transition from UK GAAP to IFRS has had a positive impact on earnings quality. However, the mitigating effect is greater for income decreasing earnings management as compared to income increasing earnings management. Therefore, the results suggest that higher quality accounting standards are not sufficient to overcome the relatively higher incentives to increase accounting income. Moreover, the results suggest that the reported effect of IFRS on earnings management is conditional on firms being audited by the big four auditors. The reported results are robust to alternative research designs and alternative measures of earnings management.

The remainder of the paper is organized as follows: section 2 discusses the research background, section 3 develops hypotheses, section 4 describes the research design, section 5 reports the empirical results, section 6 describes robustness checks, and section 7 offers conclusions.

2. Research Background

Despite the fact that IFRS and UK GAAP are closely related, a number of differences exist between the two sets of standards. Horton and Serafeim (2009) discussed six differences (leases, employee benefits, share-based payments, taxation, goodwill, and financial instruments). Accounting standards tend to be more rules based if they determine every detail and treatment to be followed. However, they tend to be more principles based if they determine the major objective of the standard and leave space for professional judgment to be exercised (Schipper, 2005, Schipper and Vincent, 2003). For instance, goodwill is amortised under UK GAAP whereas it should be tested for potential impairment under IFRS. Therefore, IFRS tends to be more principles-based than UK GAAP as it guides practice through providing the substance of the standard and, therefore, allows for professional judgment. Rules-based standards create more possibilities for transaction structuring but it limits managers' opportunistic discretion.

There is a debate in accounting research about which type of accounting standards will lead to better earnings quality (see for e.g. Nelson, 2003, Nobes, 2009). It is worth noting that the Sarbanes-Oxley Act (2002)[21] requires the SEC to study the feasibility of shifting to a more principles-based financial reporting system, and the FASB has proposed changes designed to create a more principles-based approach to standard setting (FASB 2002) in the US. The differences between UK GAAP and IFRS have attracted many research papers; for example, Horton and Serafeim (2009) investigated the value relevance of IFRS reconciliation disclosure and find that positive adjustments are value-relevant both before and after disclosure. Moreover, Armstrong et al. (2010) found an incrementally positive reaction of the European stock market to the events associated with the adoption of IFRS in Europe and further found that investors are, generally, expecting net convergence benefits from IFRS adoption.

A limited number of prior studies have examined the effect of IFRS reporting on earnings management levels or earnings quality in general. This is due to the relatively recent adoption of IFRS in most countries. Two types of adoption have been tested in prior studies; namely, voluntary and mandatory adoption. A

[21] Sarbanes-Oxley Act, 2002 Sarbanes-Oxley Act, Public Law No: 107–204, GPO, Washington, DC (2002).

few countries allowed voluntary adoption of IFRS prior to 2005 (e.g. Germany) while many other countries (e.g. the UK) did not allow IFRS adoption until it had become mandatory in 2005. Moreover, voluntary adoption has been investigated more extensively due to the relatively recent mandatory adoption of IFRS starting in 2005 in most countries around the world. Furthermore, investigating IFRS adoption and its effect on earnings quality is timely and important as it may provide regulators with adequate evidence of the perceived quality promised by IFRS.

In terms of the voluntary adoption of IFRS, Van tendeloo and Vanstraelen (2005) and Goncharov and Zimmermann (2006), using data for German companies, find evidence that IFRS does not significantly constrain earnings management. They conclude that companies adopting IFRS do not manage earnings less than those companies adopting German local GAAP. However, Barth et al. (2008) analysed data from 21 countries and find evidence that companies adopting IFRS voluntarily prior to 2005 generally have lower levels of earnings management than a matched sample of firms applying non US domestic accounting standards.

Analysing the mandatory adoption of IFRS, Jeanjean and Stolowy (2008) analyse the distribution of earnings in three countries (Australia, France and the UK) and find no evidence that the pervasiveness of earnings management declined after the mandatory introduction of IFRS; Indeed, they find that earnings management increased in France. However, Christensen et al.(2008) find evidence of improved earnings quality for German firms applying IFRS voluntarily but did not find any improvement for mandatory adoption firms. Therefore, they suggest that management incentives and national institutional factors play important roles in framing financial reporting characteristics. Furthermore, Aussenegg et al.(2008) test the effect of the transition from local GAAP to IFRS on earnings management levels using data from 17 European countries between 1995 and 2005. Their results provide evidence that companies applying IFRS experience less earnings management than firms applying domestic standards. However, for the UK and northern European countries, the evidence suggests no effect of the transition from local GAAP to IFRS. They explain this by the fact that those countries already had lower levels of earnings management before IFRS adoption compared to the rest of Europe. In summary, the very limited existing evidence suggests that mandatory IFRS reporting has had no significant effect on earnings management in the UK (Jeanjean and Stolowy, 2008). Table 1 offers a brief summary of the prior literature.

Table 1. Summary of the Related Literature

Study	Type of Adoption studied	Data	Measures used	Main results
Van tendeloo and Vanstraelen (2005). European Accounting Review	Voluntary adoption	636 German firm year observations for the period from 1999-2001	Absolute value of discretionary accruals estimated using the Jones model (1991).	No evidence of lower earnings management for IFRS firms
Barth et al. (2008) Journal of Accounting Research	Voluntary adoption	1,896 firm year observations for 327 firms applied IAS from 1990 through 2003 from 21 countries	Variability in net income as a proxy for income smoothing timely loss recognition.	Evidence of higher earnings quality for IFRS firms
Jeanjean and Stolowy (2008) Journal of Accounting and Public Policy	Mandatory adoption	5051 firm year observations from Australia, France, and the UK from 2003-2007	The ratio of small reported profits to small reported losses.	No evidence of lower earnings management for IFRS firms. Earnings management increase in France.
Aussenegg et al.(2008) Working paper	Voluntary and Mandatory adoption	18,896 firm year observations fromn 17 European countries from 1995-2005	Earnings management index based on 15 measures for earnings management.	Some evidence of lower earnings management for IFRS firms in Germany and France but no change in earnings management in English and Scandinavian countries.
Christensen et al.(2008) Working paper	Voluntary and Mandatory adoption	310 German firm year observations for the period from 1998-2006	Variability in net income as a proxy for income smoothing timely loss recognition	Improved earnings quality for firms that voluntarily adopted IFRS prior to 2005 but not for firms that mandatorily adopted IFRS after 2005.

A number of potential explanations exist for the prior mixed results. Firstly, the voluntary adoption (Barth et al., 2008) of IFRS may be associated with specific incentives for the companies choosing to adopt IFRS. These specific incentives might lead to different conclusions compared with mandatory adoption. Secondly, pooling data from different countries may lead to mixed results if the effect of IFRS adoption was different in some of the countries. Thirdly, different countries may experience different levels of enforcement of accounting standards and corporate governance mechanisms that may alter the

effect of IFRS adoption. Finally, the inconsistent use of earnings quality proxies in the prior literature could be one more explanation for the mixed results. For instance, Jeanjean and Stolowy (2008) used the distribution of earnings as their measure of earnings management whereas Van tendeloo and Vanstraelen (2005) use discretionary accruals which represents a more frequently used measure of earnings management.

3. Hypotheses Development

3.1 IFRS and Earnings Management

Building on prior research, there are five arguments which suggest that reporting under IFRS will have a positive impact on earnings quality through constraining earnings management. Firstly, "The IASC Foundation, through the IASB, is committed to developing, in the public interest, a single set of high quality, global accounting standards that require transparent and comparable information in general purpose financial statements"[22]. Therefore, IFRS promised transparency which causes managers to act more in the interests of shareholders (Ball, 2006). Moreover, Jeanjean and Stolowy (2008) argue that IFRS reduces the amount of reporting discretion relative to many local GAAPs and, therefore, pushes firms to improve their financial reporting.

Secondly, IFRS is seen to be a more principles based set of accounting standards than UK GAAP and most other local GAAPs (Schipper, 2005). There is a debate in accounting research about which type of accounting standards is better for financial reporting (see for e.g. Schipper and Vincent, 2003, Dennis, 2008, Nelson, 2003). Rules-based standards have the potential benefit of mitigating judgement based earnings management but could increase transaction structuring earnings management (Nelson, 2003, Nobes, 2005). On the other hand, principles-based standards allow for practicing professional judgement through applying the main intent of the standard (substance over form) which prevent transaction structuring and provide auditors with the required flexibility to adjust accounting numbers to match the main intent of the standard. Overall, no set of accounting standards can be viewed as either rules-based or principles-based but standards are either more rules-based or more principles-based. If applying more principles-based standards may lead to less earnings management, I can predict lower earnings management levels for firms reporting under IFRS compared to those reporting under UK GAAP.

Thirdly, Ball et al. (2003) claim that adopting a high quality set of accounting standards is a necessary condition for accounting quality but not a sufficient one; a key issue to ensure the implementation of a high quality set of accounting standards is the enforcement of these accounting standards. Schipper (2005) argues that financial reporting enforcement mechanisms differ considerably across the European Union and these differences are expected to continue past the mandatory adoption of IFRS. Concerning the UK enforcement system, the Financial Reporting Review Panel (FRRP) is responsible for the enforcement of IFRS in the UK and it is considered highly effective (Brown and Tarca, 2005). Therefore, I expect that the relatively stronger enforcement mechanisms in the UK compared with other countries will enhance the mandatory and voluntary reporting of IFRS. This will ensure the proper implementation of IFRS and should, therefore, lead to improving the quality of reporting earnings. I expect, therefore, that IFRS reporting in the UK might have different impact on earnings management compared to other countries and suggest that IFRS reporting should be tested in each single country on its own without pooling data from different countries with different enforcement mechanisms.

Fourthly, the comparability promised by IFRS should make financial statements more widely used by international investors and, therefore, managers will face greater responsibility and liability issues which should make them strive to constrain earnings management practices.

Finally, the implementation of IFRS would reduce the information asymmetry between informed and uninformed investors (Bushma and Smith, 2001). For example, IAS 1 'Presentation of Financial Statements' requires sensitive information, such as managerial judgements and assumptions while forming the entity's accounting policies as well as sources of estimation uncertainty that may have a material impact on the entity's financial statements, to be appropriately disclosed and reported in the annual reports (Iatridis, 2010)

Based on the above discussion, the first hypothesis can be stated as follows:

H1: There is a negative association between IFRS reporting in the UK and the absolute value of discretionary accruals as a measure of earnings management.

3.2 Direction of Managing Earnings

Incentives to manage earnings upwards could be stronger than incentives to manage earnings downwards. Prior literature documents more use of income increasing as compared to income decreasing earnings management. For instance, Teoh et al. (1998) argue that abnormal accruals tend to be income increasing rather than income decreasing for publicly quoted companies, while Degeorge et al. (1999) argue for the psychologically important distinction between positive and negative earnings figures. Moreover,

[22] Source http://www.iasb.org/NR/rdonlyres/9F5C7C45-F8C2-4711-BF2F C8A44949F9B3/0/constitution_proposals_pr_120508.pdf

Nelson et al. (2002) provide evidence that managers are more likely to manage earnings to increase income than to reduce income. Furthermore, Ashbaugh et al. (2003) argue that income increasing earnings management resulting in earnings overstatements are more frequent and of greater concern to auditors. I conclude from these previous research results that managers have more incentives to manage earnings upwards to increase income than to decrease it.

Therefore, due to the different relative importance of income increasing versus income decreasing earnings management, I expect the effect of IFRS reporting to be different with respect to these two directions. Although many of the earnings management studies use separate tests for positive versus negative discretionary accruals as a robustness check, in this paper the potential differential impact of reporting standards on income increasing versus income decreasing earnings management is of prime importance. Given the relatively higher incentives of management to manage earnings upwards to increase accounting income than those to manage earnings downwards to decrease income, I expect to find the association between IFRS reporting and earnings management to be stronger in cases of income decreasing earnings management than for cases of income increasing earnings management. Therefore, the second hypothesis can be stated as follows:

H2: The effect of IFRS reporting is conditional on the direction of managing earnings.

3.3 Audit Quality

Different proxies for audit quality are discussed in the prior literature (see for example; DeAngleo, 1981). The widely accepted proxy is audit firm size as prior research has found evidence that big auditors charge higher fees, have lower litigation rates, lead to stronger market reactions, and their clients have lower levels of earnings management. As earnings management levels are conditional on both accounting standards and their implementation (Van tendeloo and Vanstraelen, 2005) and given that prior research suggests that big four auditors provide higher quality audits (Francis and Dechun, 2008, Becker et al., 1998), then the relationship between reporting under IFRS and earnings management might be conditional on audit quality. More specifically, the big four auditors are more likely to ensure higher compliance with IFRS due to their ability to invest in quality staff and procedures (DeAngelo, 1981), and the greater reputational and litigation risk of non-compliance which is associated with a client base of larger companies. Therefore, I expect to find stronger evidence of the effect of IFRS reporting for companies audited by big four auditors than companies audited by non big four auditors. Therefore, the third hypothesis can be stated as follows:

H3: The association between IFRS reporting and earnings management is conditional on audit quality surrogated by audit firm size.

4. Research Design

4.1 Earnings Management Measures

Earnings management is generally unobservable to external parties (Dechow and Skinner, 2000) and prior studies have used different measures to proxy for earnings management (e.g. Dechow et al., 1995, Burgstahler and Dichev, 1997, Peasnell et al., 2000, Kothari et al., 2005). Measures of earnings management range from discretionary accruals measures, which are the most frequently used measures in the literature, to measures of managing earnings towards a target such as loss avoidance (Degeorge et al., 1999). Alternative measures estimate real earnings management activities which represent managerial decisions such as research and development costs (Cohen and Zarowin, 2010). Finally, another approach is to measure the shifting of accounting classifications as a means of affecting operating income figures (McVay, 2006). Following the related literature (Caramanis and Lennox, 2008, Francis and Yu, 2009, Dechow et al., 1995), this paper uses two main measures of earnings management - discretionary accruals and earnings benchmark tests.

4.1.1 Discretionary Accruals Measures

Discretionary accruals models have been used extensively in the prior literature to estimate earnings management levels or levels of unexpected accruals. While there is little evidence on the superiority of one model over the others (Ashbaugh et al., 2003, Myers et al., 2003), the main arguments concerning discretionary accruals models can be summarised into three categories; models depending on total accruals (Jones, 1991), current accruals (Young, 1999, Peasnell et al., 2000) and performance matched models (Kothari et al., 2005)[23].

I measure total accruals and current accruals using the cash flow statement approach as suggested by Hribar and Collins (2002) rather than the balance sheet approach due to the potential error and bias in such an approach. I define total accruals (TACC) as income before extraordinary items minus cash flows from operating activities and I define current accruals (CACC) as income before extraordinary items plus depreciation and amortisation minus cash flows from operating activities.

The Modified Jones Accruals Model

I begin by estimating a cross-sectional version of the Jones model (1991) as modified by Dechow et al.

[23] Dechow et al (2009) criticise the use of a single proxy for earnings quality which may enable finding significant results consistent with the chosen hypothesis.

(1995) for all firms i in industry j for year t. The model is

$$TACC/ TA_{it-1} = \alpha_{0jt} + \alpha_{1jt} (1/TA_{it-1}) + \alpha_{2jt} (\Delta SALES_{it} / TA_{it-1}) + \alpha_{3jt} PPE_{it} / TA_{it-1} + \mathcal{E}_{it} \quad (1)$$

Where TA_{it-1} is the lagged total assets, $\Delta SALES_{it}$ is the change in sales scaled by lagged total assets and PPE_{it} is the gross property, plant and equipment scaled by lagged total assets. I estimate equation (1) for each 2 digit industry-year combination that has a minimum of 10 observations. All variables are scaled by lagged total assets to mitigate the effect of heteroskedasticity (Kothari et al., 2005, Daniel et al., 2008). I then calculate discretionary accruals using equation (2) as follows

$$DAMJ_{it} = TACC_{it}/ TA_{it-1} - NACC_{it} \quad (2)$$
$$= TACC_{it}/ TA_{it-1} - [\beta_{0jt} + \beta_{1jt} (1/TA_{it-1}) + \beta_{2jt} (\Delta SALES_{it} - \Delta REC) / TA_{it-1} + \beta_{3jt} PPE_{it} / TA_{it-1}]$$

Where $DAMJ_{it}$ is discretionary accruals estimated using the modified version of the Jones model, $NACC_{it}$ is normal (non discretionary) accruals, ΔREC is the change in trade receivables and β_{0jt}, β_{1jt}, β_{2jt}, and β_{3jt} are the industry-year OLS parameters estimated in equation (1). The main aspect of the Jones model is to expect normal accruals to be based on the normal pattern of accruals within each industry in each year. Dechow et al (1995) modified the model so that cash sales are not included in the calculation of nondiscretionary accruals as only credit sales are thought to be subject to income manipulation.

The Working Capital Accruals Model

While the modified Jones model includes property, plant, and equipment to explain long term accruals, mainly depreciation (Gore et al., 2007), this component is unlikely to be an effective means of managing earnings given its visibility which leads to the market's ability to observe it (Young, 1999). In addition, the use of property, plant and equipment may result in biased results due to the measurement error in the estimation of non discretionary accruals in cases of revaluation of those items under IFRS (Soderstrom and Sun, 2007). Therefore, as an additional measure of earnings management, I use the working capital (current) version of the modified Jones model as follows:

$$CACC/ TA_{it-1} = \alpha_{0jt} + \alpha_{1jt} (1/TA_{it-1}) + \alpha_{2jt} (\Delta SALES_{it} / TA_{it-1}) + \mathcal{E}_{it} \quad (3)$$

$$DAMJC_{it} = CACC_{it}/ TA_{it-1} - NACC_{it} \quad (4)$$
$$= CACC_{it}/ TA_{it-1} - [\beta_{0jt} + \beta_{1jt} (1/TA_{it-1}) + \beta_{2jt} (\Delta SALES_{it} - \Delta REC) / TA_{it-1}]$$

Where $CACC_{it}$ is current accruals measured as income before extraordinary items plus depreciation and amortisation minus cash flows from operating activities, $DAMJC_{it}$ is the discretionary accruals for firm i in year t estimated using the current version of the modified Jones model. All other variables are as defined earlier.

The Performance Matched Discretionary Accruals Model

Finally, Kothari et al. (2005) find evidence that discretionary accruals models might be misspecified when applied to a sample of firms experiencing extreme financial performance and suggested adding return on investment as an additional regressor to control for extreme performance. However, Dechow et al. (2009) noted that control for performance can reduce the power of the test and should only be applied when performance is an issue. Therefore, I use the performance matched discretionary accruals model as a final discretionary accruals model. I estimate the performance matched discretionary accruals model as follows:

$$CACC/ TA_{it-1} = \alpha_{0jt} + \alpha_{1jt} (1/TA_{it-1}) + \alpha_{2jt} (\Delta SALES_{it} / TA_{it-1}) + \alpha_{3jt} ROA_{it-1} + \mathcal{E}_{it} \quad (5)$$

$$DACMM_{it} = CACC_{it}/ TA_{it-1} - NACC_{it} \quad (6)$$
$$= CACC_{it}/ TA_{it-1} - [\beta_{0jt} + \beta_{1jt} (1/TA_{it-1}) + \beta_{2jt} (\Delta SALES_{it} - \Delta REC_{it}) / TA_{it-1} + \beta_{3jt} ROA_{it-1}]$$

Where ROA_{it-1} is defined as lag income before extraordinary items scaled by lagged total assets, $DACMM_{it}$ is the discretionary accruals for firm i in year t estimated using the performance matched discretionary accruals model. All other variables are defined earlier.

To capture the combined effect of both income increasing and income decreasing earnings management, the absolute value of each of the above three measures is used. Moreover, in order to capture the differential effect of IFRS on income increasing versus income decreasing earnings management, I create additional six variables for positive and negative discretionary accruals which are the positive (negative) discretionary accruals using each of the three earnings management models mentioned above.

4.1.2 Earnings Benchmark Tests

As an additional test to avoid any misspecification which might be associated with discretionary accruals models, I use meeting benchmark tests as an alternative measure of earnings quality. Prior studies document that the frequency of small profits is unusually high in comparison with the earnings distribution as a whole (Burgstahler and Dichev, 1997, Degeorge et al., 1999). Degeorge et al. (1999) suggest that firms may engage in earnings management to report small positive profits to avoid reporting a loss if unmanaged earnings would have been negative. Avoiding reporting a loss is important as it may affect relationships with creditors (Graham et al., 2005). Moreover, companies may manage earnings to avoid reporting a decline in earnings. Therefore, earnings are assumed to be of higher

quality if the firm does not systematically meet earnings benchmark targets (Francis and Yu, 2009).

I use the likelihood of firms reporting small profits and firms reporting small increases in profits as additional earnings management proxies. I created two additional variables for this purpose namely SMALL_POSITIVE and SMALL_INCREASE. SMALL_POSITIVE is a dichotomous variable defined as 1 if the company reports net income deflated by lagged total assets is between 0% and 5% and 0 otherwise. SMALL_INCREASE is a dichotomous variable defined as 1 if the increase in the company's reported net income deflated by lagged total assets is between 0% and 1% and 0 otherwise. I use similar cut-offs to those reported in Francis and Yu (2009) and Ashbaugh et al.(2003).

4.2 Model and Control Variables

To enable hypotheses testing, I employ the following regression model

$$EM = \beta_0 + \beta_1 ACC\_STD_{i,t} + \beta_2 B4_{i,t} + \beta_3 MV_{i,t} + \beta_4 MB_{i,t} + \beta_5 TDTA_{i,t} + \beta_6 SHARES\_CHANGE_{i,t} + \beta_7 GROWTH_{i,t} + \beta_8 LAGLOSS_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} CFO\_ABS_{i,t} + \beta_{11} CAC\_ABS_{i,t} + \beta_{12\text{-}16} YEAR_{2003\text{-}2007} + \mathcal{E} \quad (7)$$

Where the variables are defined as follows

Variable	Definition
EM: earnings management measures	
DAMJ_ABS (DAMJP) (DAMJN)	Absolute value (Positive) (Negative) discretionary accruals measured using the modified Jones model.
DAMJC_ABS (DAMJCP) (DAMJCN)	Absolute value (Positive) (Negative) discretionary accruals measured using the current version modified Jones model.
DACMM_ABS (DAMMJP) (DAMMJN)	Absolute value (Positive) (Negative) discretionary accruals measured using the performance matched discretionary accruals measure.
SMALL_POSITIVE	1 if reported net income deflated by lagged total assets is between 0 and 5% and 0 otherwise.
SMALL_INCREASE	1 if increase in reported net income deflated by lagged total assets is between 0 and 1% and 0 otherwise.
ACC_STD	1 if the company reports under IFRS and 0 otherwise.
B4	1 if the firm is audited by big 4 and 0 otherwise.
MV	Natural log of market capitalisation.
MB	Market to book ratio measured by market capitalisation divided by total assets.
TDTA	Leverage measured by total debt divided by total assets multiplied by 100.
SHARES_CHANGE	Percentage change in number of common shares for the year.
GROWTH	Percentage change in sales for the year.
LAGLOSS	Dummy equals 1 if a firm reported a loss (negative income before extraordinary items) in the previous year and 0 otherwise.
ROA	Return on assets measured as net income divided by average total assets multiplied by 100.
CFO_ABS	Absolute value of cash flows from operations scaled by lagged total assets.
CAC_ABS	Absolute value of the lag of current accruals scaled by lagged total assets.
$YEAR_{2003\text{-}2007}$	Year dummies

The dependent variable is earnings management, the main independent variable is the accounting standards and there are a number of control variables. Firstly, I control for audit firm size as a proxy for audit quality because previous studies found a negative association between earnings management and audit quality (e.g. Becker et al., 1998). Following prior studies, I include firm size, measured by the market value of equity, to control for the differences in the accrual behaviour of managers of large and small firms (e.g. Gul et al., 2009). Moreover, prior studies found evidence that larger firms engage less in earnings management (e.g. Ashbaugh et al., 2003) and, therefore, a negative association is expected between firm size and earnings management.

Furthermore, capital market pressure might influence earnings management and I use the market to book ratio as a control (e.g. Francis and Yu, 2009). Following the prior literature, a positive association is expected between the market to book ratio and earnings management. In addition, DeFond and Jiambalvo (1994) find evidence that firms with higher leverage (higher debt) have greater incentives to manage earnings as a result of debt covenant constraints; I control for leverage by the ratio of total debt divided by total assets and expect to find a positive association between it and earnings management.

Prior studies control for mergers and acquisitions to capture firms' business combination activities (e.g. Ashbaugh et al., 2003). Unfortunately, I were not able to collect this variable due to database limitations as explained in section 4.3. Therefore, I computed an alternative new variable, the percentage

change in the number of shares, to proxy for business change. Companies engaging in mergers and acquisitions are expected to have incentives to increase income to benefit from share offerings. Therefore, I expect to find a positive association between a change in the number of shares and earnings management. Moreover, as an additional proxy of growth, I control for a growth in sales to capture changes in firm performance unrelated to earnings management (Gul et al., 2009, Hribar and Nichols, 2007). In addition, Francis and Yu (2009) find that firms reporting a loss in the previous year are less likely to engage in earnings management than firms reporting positive profits. Therefore, I control for previous year losses and expect a negative association with earnings management. However, the sign of LAGLOSS may differ in cases of income increasing versus income decreasing earnings management. Furthermore, I control for the return on investment to capture firm performance (Frankel et al., 2002) and I expect a negative association with earnings management measures.

Dechow et al. (1995) find a negative association between cash flows from operations and earnings management. I control for the absolute value of operating cash flows. As an alternative specification, I used the signed value of operating cash flows and the results are qualitatively similar to those reported in the paper. Finally, I control for the absolute value of current accruals to control for the normal relation between accruals in successive years (Chung and Kallapur, 2003).

4.3 Sample Selection and Data Collection

The sample of this paper comprises all UK listed active and dead companies from 2003-2007[24]. The sample period allows the inclusion of companies which were reporting under UK GAAP and then moved to IFRS, as well as companies which were continually using UK GAAP. The sample period was selected due to two main reasons. Firstly, prior to 2003, there were some significant changes in the audit environment as a consequence of the collapse of Arthur Andersen, the Sarbanes-Oxley Act and the collapse of some very large American firms. Secondly, the years 2008 and later suffer from the global financial crisis. Therefore, I have selected a relatively stable sample period to test the hypotheses. Table 2 presents the sample selection procedures.

The initial sample consists of 8077 firm-year observations. Following the prior literature, financial companies (Standard Industry Classification code (SIC) 60-69) were excluded due to their different accruals' generating process and specific accounting requirements (e.g. Francis and Yu, 2009, Maijoor and Vanstraelen, 2006). I keep utility companies to maximise the sample which is similar to some previous studies (Lim and Tan, 2008). In order to estimate earnings management, similar to Francis and Yu (2009), I depend on three models of discretionary accruals and I impose a constraint of a minimum of 10 observations in each 2 digit SIC-year combination. I exclude any observation with revenues less than £500,000 to avoid bias resulting from inclusion of insignificant firms in the sample (Ball and Shivakumar, 2008). These procedures resulted in 5173 firm-year observations with all necessary variables required to estimate discretionary accruals models. I used this sample for the first stage of the paper to estimate all discretionary accruals variables. Finally, I delete observations with other missing data such as auditor's identity, market capitalisation and number of shares. The sample selection procedures resulted in a final sample of 2799 firm-year observations representing 688 unique firms. Table 3 presents industry/year classifications which show that I have a minimum of 10 firms in SIC 49 in years 2003 and 2004. The maximum number of firms in a single SIC-year combination is 169 in SIC 73 in year 2006.

Regarding reporting under UK GAAP and IFRS, I classified the sample into three groups: UK GAAP, mandatory IFRS, and voluntary IFRS. Data concerning accounting standards followed by firms were collected from WorldScope and cross checked with FAME database for errors. I also collected financial statement dates data from WorldScope. Firms with financial periods starting before 31st December, 2004 were all reporting under UK GAAP. In addition, individual companies and AIM companies did not have to comply with IFRS for financial periods starting before 1st January, 2007. Group listed firms with financial periods starting on or after 1st January, 2005 and reporting under IFRS were classified as mandatory IFRS reporters. Finally, individual listed companies with financial periods starting 1st January, 2005 and AIM companies with periods starting prior to 1st January, 2007 are classified as voluntary IFRS reporters if they chose to comply with IFRS. Table 4 reports yearly frequencies for each group of the three groups and shows that 67.13% of the sample is reporting under UK GAAP, 28.19% is reporting under IFRS mandatorily, and only 4.68% is reporting under IFRS voluntarily. A further check has been made and I found that all the voluntary reporters are AIM companies for financial periods starting before 1st January 2007. I have conducted the tests basically to compare reporting under IFRS versus UK GAAP. However, I have repeated all the tests with exclusion of the voluntary reporters to check if the results are robust to mandatory reporting. I found all results are qualitatively similar to those reported in the paper. Due to the relatively very small proportion of voluntary IFRS reporters, I did not conduct similar

[24] Mandatory adoption of IFRS started in 2005 for group companies only, while individual companies have the choice between UK GAAP and IFRS. Therefore, I have repeated my analysis using the periods from 2005-2007 and the results are qualitatively similar to those reported in the paper.

tests to compare voluntary IFRS reporting with either mandatory IFRS reporting or UK GAAP because of the expected low power of the tests resulting from the relatively small sample.

Table 2. Sample Selection Procedures

Initial sample: Firm year observations with required financial data	8077
Exclude: Financial companies (SIC codes 60-69)	(958)
Exclude: Observations with less than 10 firms in each sic/year combination	(1159)
Exclude: Firms with sales < £500,000	(787)
Useable sample for estimating discretionary accruals	5173
Exclude: Observations with other missing data (auditor, number of shares, and market to book ratio)	(2374)
Final sample	2799

Number of unique firms=688 firms

Table 3. Classification by Year and Industry

		Year					
SIC	**Industry**	2003	2004	2005	2006	2007	Total
13	Oil And Gas Extraction	16	17	18	22	23	96
15	General Building Contractors	20	22	23	23	22	110
20	Food And Kindred Products	23	25	27	27	29	131
27	Printing And Publishing	17	19	19	22	19	96
28	Chemicals And Allied Products	33	37	48	55	52	225
35	Industrial Machinery And Equipment	18	21	25	27	28	119
36	Electronic & Other Electric Equipment	40	43	46	54	46	229
38	Instruments And Related Products	33	38	43	44	41	199
48	Communications	17	22	31	35	31	136
49	Electric, Gas, And Sanitary Services	10	10	16	16	15	67
50	Wholesale Trade - Durable Goods	38	39	44	48	43	212
73	Business Services	119	134	152	169	164	738
79	Amusement & Recreation Services	18	22	23	23	24	110
87	Engineering & Management Services	53	57	68	79	74	331
Total		455	506	583	644	611	2799

Table 4. Classification by Accounting Standards and Year

	Year						
Accounting Standards	2003	2004	2005	2006	2007	Total	Percentage
UK GAAP	455	506	433	312	178	1,879	67.13%
Mandatory IFRS Reporting	0	0	126	264	394	789	28.19%
Voluntary IFRS Reporting	0	0	24	68	39	131	4.68%
Total	455	506	583	644	611	2,799	100%

I collected the data using the WorldScope[25] and FAME[26] databases. All financial data and accounting standards for each company in each year were collected using WorldScope. However, Daske et al. (2007) report that the accounting standards data item on WorldScope has a classification error and we, therefore, used the same data item from FAME and data from a sample of annual reports to provide a cross check – this further analysis provided qualitatively similar results. Turning to audit firm size, WorldScope keeps records only for the current financial period with no mention if the company changed auditors in previous years. However, the FAME database holds a data item called "previous auditors grouped" which I use to form the overall data series. All financial continuous data, including discretionary accruals measures, are winsorized at the top 1% and bottom 99% in order to avoid outlier problems (see Caramanis and Lennox, 2008, Francis and Yu, 2009).

[25] WorldScope is a database provided by Thomson One Banker. It is worth noting that it has data items which were previously part of Datastream.

[26] FAME provides comprehensive data for UK private and publicly listed companies and is maintained by the Bureau Van Dijk.

5. Empirical Results

5.1 Descriptive Statistics

Table 5 reports descriptive statistics for all data items used in the study. Results show that the average of the absolute value of the discretionary accruals measures is highest for the modified Jones model followed by the current version of the modified Jones model and finally the performance matched discretionary accruals measures. A similar pattern is presented for positive and negative discretionary accruals. For the earnings benchmark measure, an average of 19.2% of firm-year observations reported a small profit in the ratio between 0% and 5%, and an average of 8.5% of firms reported a small increase in profits in the ratio between 0% and 1%. Table 5 shows that 39.2% of the sample reported a loss in the previous year measured as a negative income before extraordinary items. As to discretionary accruals, the mean of discretionary accruals estimated using the modified Jones model, the current accruals, and the performance matched were 12.1, 11.2%, and 10.5% respectively.

As to the accounting standards followed, table 7 reports 1,879 (67.1%) firm-year observations of the sample are reporting under UK GAAP whereas 920 (32.9%) firm-year observations are reporting under IFRS. The large proportion of UK GAAP is expected because IFRS was not allowed in years 2003 and 2004. Table 7 also shows that the firm years for big four auditors comprised 942 (59.2%) of UK GAAP firms-years and 647 (40.7%) of the IFRS firms-years' whereas the non-big four audited firm years comprised 937 (77.4%) of UK GAAP firms-years and 273 (22.6%) of IFRS firms-years. In total, 1210 (43.2%) observations are audited by non-big four auditors whereas 1589 (56.8%) are audited by big four auditors. In addition, Table 8 reports 1,102 (84.5%) firm-year observations of main market firms are audited by big four auditors whereas 203 (15.5%) firm-year observations of the main market firms are audited by non-big four auditors. Furthermore, as to AIM market firms, 487 (32.5%) firm-year observations are audited by big four auditors whereas 1,007 (67.5%) firm-year observations are audited by non-big four auditors. To sum up, the pooled sample presents a reasonable diversification of accounting standards and auditor size.

Table 5: Descriptive Statistics

stats	N	Mean	Median	1st Quartile	3rd Quartile	Max	Min
Earnings management variables							
DAMJC_ABS	2718	0.112	0.066	0.030	0.130	0.805	0.002
DAMJ_ABS	2718	0.121	0.077	0.035	0.149	0.796	0.001
DACMM_ABS	2709	0.105	0.061	0.028	0.125	0.774	0.001
DAMJCP	1480	0.105	0.064	0.030	0.123	0.797	0.001
DAMJP	1480	0.116	0.074	0.034	0.144	0.796	0.001
DACMMP	1434	0.099	0.061	0.027	0.118	0.715	0.001
DAMJCN	1238	0.119	0.067	0.030	0.145	0.822	0.002
DAMJN	1238	0.129	0.083	0.035	0.158	0.847	0.002
DACMMN	1275	0.111	0.062	0.028	0.135	0.803	0.001
SMALL_POSITIVE	2799	0.192	0.000	0.000	0.000	1.000	0.000
SMALL_INCREASE	2799	0.085	0.000	0.000	0.000	1.000	0.000
Independent variables							
ACC_STD	2799	0.329	0.000	0.000	1.000	1.000	0.000
B4	2799	0.570	1.000	0.000	1.000	1.000	0.000
MV	2669	10.878	10.596	9.279	12.267	16.941	6.655
MB	2669	1.571	1.076	0.632	1.935	8.588	0.152
TDTA	2799	16.767	10.498	0.543	24.436	116.680	0.000
SHARES_CHANGE	2791	0.064	0.003	0.000	0.047	0.783	-0.139
GROWTH	2767	0.413	0.117	-0.008	0.345	9.416	-0.615
LAGLOSS	2799	0.392	0.000	0.000	1.000	1.000	0.000
ROA	2799	-2.066	4.905	-5.539	9.923	42.274	-110.7
CFO_ABS	2799	0.187	0.112	0.060	0.206	1.686	0.003
CAC_ABS	2782	0.098	0.054	0.025	0.110	0.871	0.001

Variable definitions:
DAMJC_ABS (DAMJCP) (DAMJCN) = Absolute value (Positive) (Negative) discretionary accruals measured using the current version of the modified Jones model. DAMJ_ABS (DAMJP) (DAMJN) = Absolute value (Positive) (Negative) discretionary accruals measured using the modified Jones model. DACMM_ABS (DAMMJP) (DAMMJN) = Absolute value (Positive) (Negative) discretionary accruals measured using the performance matched discretionary accruals measures. SMALL_POSITIVE = 1 if reported net income deflated by lagged total assets between 0 and 5% and 0 otherwise. SMALL_INCREASE = 1 if reported increase in net income deflated by lagged total assets between 0 and 1% and 0 otherwise. ACC_STD = 1 if the company reports under IFRS and 0 otherwise. B4 = 1 if the firm is audited by big 4 and 0 otherwise. MV = natural log of market capitalisation. MB = market to book ratio measured by market capitalisation divided

by total assets. TDTA = leverage measured by total debt divided by total assets multiplied by 100. SHARES_CHANGE: proportion change in number of common shares for the year. GROWTH = proportion change in sales for the year. LAGLOSS = dummy equals 1 if firm reported a loss in the previous year and 0 otherwise. ROA = return on assets measured as net income divided by average total assets multiplied by 100. CFO_ABS = Absolute value of cash flows from operations scaled by lagged of total assets. CAC_ABS = Absolute value of the lag of current accruals scaled by lagged of total assets.

Table 6 reports summary statistics for the three earnings management estimation measures used in this paper. The table shows the mean and median coefficients of the industry-year cross sectional regressions from estimating equations (1), (3), and (5). The table also reports R^2 from the (125) industry-year regressions. As expected and documented in prior studies, the coefficient of the change in revenues is positive which shows a positive association between the change in revenues and accruals (both total and current). The table also shows a negative association between PPE (Gross property, plant, and equipment) and total accruals. Furthermore, the table reports positive association between ROA (Return on assets) and current accruals. In addition, the median R^2 is 34%, 22%, and 34% and the mean R^2 is 41%, 35%, and 43% for the modified Jones, the working capital accruals, and the performance matched discretionary accruals measures respectively. These statistics agree with previous studies (e.g. Lim and Tan, 2010).

Table 6. Coefficient Estimates in Estimating Earnings Management (Normal Accruals)

Model 1: $TACC/TA_{it-1} = \alpha_{0jt} + \alpha_{1jt}(1/TA_{it-1}) + \alpha_{2jt}\Delta SALES_{it}/TA_{it-1} + \alpha_{3jt} PPE_{it}/TA_{it-1} + \varepsilon_{it}$			
Variable	N	Mean	Median
α_{0jt}	125	-0.02	-0.03
α_{1jt}	125	195.15	-42.47
α_{2jt}	125	0.04	0.04
α_{3jt}	125	-0.02	0.01
R^2	125	0.41	0.34
Model two: $CACC/TA_{it-1} = \alpha_{0jt} + \alpha_{1jt}(1/TA_{it-1}) + \alpha_{2jt}\Delta SALES_{it}/TA_{it-1} + \varepsilon_{it}$			
Variable	N	Mean	Median
α_{0jt}	125	0.02	0.02
α_{1jt}	125	181.17	-46.69
α_{2jt}	125	0.07	0.05
R^2	125	0.35	0.22
Model three: $CACC/TA_{it-1} = \alpha_{0jt} + \alpha_{1jt}(1/TA_{it-1}) + \alpha_{2jt}\Delta SALES_{it}/TA_{it-1} + \alpha_{3jt} ROA_{it-1} + \varepsilon_{it}$			
Variable	N	Mean	Median
α_{0jt}	125	0.01	0.01
α_{1jt}	125	265.16	12.9
α_{2jt}	125	0.06	0.04
$\boldsymbol{\alpha_{3jt}}$	125	0.22	0.14
$\mathbf{R^2}$	125	0.43	0.34

Notes:
The above table represent summary statistics for the three models used in the paper to estimate discretionary accruals. The table shows the mean and median coefficients from 125 annual cross-sectional regressions. TACC is income before extraordinary items minus cash flows from operating activities. TA_{it-1} is the lagged total assets. $\Delta SALES_{it}$ is the change in sales scaled by lagged total assets. PPE_{it} is the gross property, plant and equipment scaled by lagged total assets. $CACC_{it}$ is current accruals measured as income before extraordinary items plus depreciation and amortisation minus cash flows from operating activities. ROA_{it-1} is defined as lag income before extraordinary items scaled by lagged total assets.

Table 7. Classification of Firm-Years by Accounting Standards Followed and Auditor Size

	Auditor					
Accounting Standards Followed	Non Big Four		Big Four		Total	
UK GAAP	937	77.4%	942	59.2%	1,879	67.1%
IFRS	273	22.6%	647	40.8%	920	32.9%
Total	1,210	100%	1,589	100%	2,799	100%

This Panel provides sample classification showing the number of firm-years observations reporting under each set of accounting standards (UK GAAP and IFRS) and audited by big four auditors versus non big four auditors.

Table 8. Classification by Auditor Type and Type of Market

Type of Market	Auditor			
	Big Four		Non Big Four	
Main Market	1,102	84.5%	203	15.5%
AIM Market	487	32.5%	1,007	67.5%

This Panel provides sample classification showing the number of firm-years observations listed in each of the main market and AIM market and audited by big four auditors versus non big four auditors.

5.2 Univariate Tests

Table 9 presents t-tests for the difference of means between firms reporting under IFRS versus firms reporting under UK GAAP. The table illustrates that a significant difference exists for all measures of discretionary accruals using the modified Jones model, the current version of the Jones model, and the performance matched model. The results of the table support the first hypothesis and show that firms preparing their financial statements in accordance with IFRS generally have lower levels of earnings management. However, mean differences appear to be larger for negative discretionary accruals than for positive discretionary accruals. For example, positive discretionary accruals (using the working capital accruals model) for firms reporting under UK GAAP are 2.24% greater than those for firms using IFRS; whereas, the average negative discretionary accruals are 4.41% greater for firms reporting under UK GAAP than for firms reporting using IFRS (using the current version of the Jones model). This final result agrees with the second hypothesis that IFRS reporting will have a larger effect on income decreasing earnings management than on income increasing earnings management. Similar results are reported using the modified Jones model and the performance matched discretionary accruals measures.

Table 10 also reports yearly t-tests for the years 2005, 2006, and 2007 to test whether there are significant differences between the absolute value of discretionary accruals reported under UK GAAP versus those reported under IFRS in each individual year. I did the tests only for years beginning in 2005 because IFRS adoption was not allowed before 2005. I report evidence that the differences in earnings management levels are not confined to the adoption year but extend for every year after which suggests that reporting under IFRS generates less earnings management.

Table 9. Univariate Tests (Pooled sample)

	UK GAAP		**IFRS**		**Difference in means**	
Variable	Obs	Mean	Obs	Mean		t-statistics
Absolute value of discretionary accruals - All						
DAMJC_ABS	1827	0.122294	891	0.090017	0.032277	5.7135***
DAMJ_ABS	1827	0.133241	891	0.097386	0.035855	6.3544***
DACMM_ABS	1819	0.114792	890	0.085021	0.029771	5.5281***
Absolute value of discretionary accruals – Positive						
DAMJCP	994	0.112664	486	0.090216	0.022448	3.0964***
DAMJP	969	0.125817	511	0.097052	0.028765	3.9905***
DACMMP	981	0.106447	453	0.084287	0.02216	3.1942***
Absolute value of discretionary accruals - Negative						
DAMJCN	833	0.133916	405	0.089751	0.044165	4.9793***
DAMJN	858	0.142399	380	0.097835	0.044564	4.9036***
DACMMN	838	0.124108	437	0.085669	0.038439	4.6571***

Table 10. Univariate Tests (Yearly)

	UK GAAP		IFRS		Difference in means	
Variable	Obs	Mean	Obs	Mean		t-statistics
Absolute value of discretionary accruals – Current version of the Jones model						
2005	418	.1316297	145	.0817688	.0498609	3.5684***
2006	303	.1421692	320	.091547	.0506222	4.7153***
2007	174	.1487926	423	.0915919	.0572007	4.6996***

*** *p<0.01*

Variable definitions:

DAMJ_ABS (DAMJP) (DAMJN) = Absolute value (Positive) (Negative) discretionary accruals measured using the modified Jones model. DAMJC_ABS (DAMJCP) (DAMJCN) = Absolute value (Positive) (Negative) discretionary accruals measured using the current version of the modified Jones model. DACMM_ABS (DAMMJP) (DAMMJN) = Absolute value (Positive) (Negative) discretionary accruals measured using the performance matched discretionary accruals measures.

5.3 Correlations

Table 11 presents a correlation matrix using Pearson and Spearman correlations coefficients. I present Variance Inflation Factors (VIF) in the last column to check for collinearity issues. The reported results show no potential muticollinearity issues given that the maximum VIF is 2.04. The absolute value of the discretionary accruals estimated using the current version of the modified Jones model is significantly and negatively correlated with the accounting standards adopted by firms suggesting that companies reporting under IFRS have lower earnings management than those reporting under UK GAAP. Similar correlations (un-tabulated) are reported for all other measures of earnings management.

The table also shows a significant positive correlation (19%) between the accounting standards adopted by firms and whether they are audited by big four auditors. A possible explanation for this result is that IFRS is mandatory for group companies and most of these companies are audited by big four auditors due to size considerations. This last argument also explains the positive correlation (35%) between accounting standards and market value (size variable) and also explains the relatively high correlation (58%) between the big four auditor variable and market value.

Table 11. Pearson (above) / Spearman (below) Correlations

Variable	DAMJC_ ABS	ACC _STD	B4	MV	MB	TDTA	SHA RES _CH	GRO WT H	LAG LOS S	ROA	CFO _AB S	CAC _AB S	VIF
DAMJC_A BS	1.00	-0.11	-0.20	-0.20	0.21	0.08	0.20	0.21	0.18	-0.26	0.39	0.33	
ACC_STD	-0.09	1.00	0.19	0.35	-0.04	0.01	-0.07	-0.05	-0.18	0.16	-0.07	-0.10	1.88
B4	-0.19	0.19	1.00	0.57	-0.06	0.11	-0.16	-0.11	-0.17	0.17	-0.18	-0.16	1.56
MV	-0.20	0.35	0.59	1.00	0.06	0.10	-0.19	-0.08	-0.38	0.36	-0.13	-0.23	2.04
MB	0.15	0.02	-0.02	0.18	1.00	-0.11	-0.02	0.15	0.12	-0.19	0.41	0.17	1.36
TDTA	-0.05	0.05	0.13	0.19	-0.28	1.00	0.05	-0.05	0.04	-0.07	0.00	0.13	1.08
SHARES_ CHANGE	0.08	-0.01	-0.06	-0.05	0.09	0.00	1.00	0.27	0.26	-0.27	0.27	0.17	1.24
GROWTH	0.11	0.00	-0.13	0.00	0.25	-0.05	0.22	1.00	0.16	-0.14	0.29	0.06	1.19
LAGLOSS	0.16	-0.18	-0.17	-0.39	0.02	-0.04	0.19	0.01	1.00	-0.51	0.19	0.24	1.53
ROA	-0.10	0.20	0.15	0.41	0.17	0.02	-0.22	0.12	-0.57	1.00	-0.35	-0.23	1.66
CFO_ABS	0.17	-0.04	-0.10	-0.02	0.47	-0.11	0.08	0.22	0.04	0.09	1.00	0.32	1.61
CAC_ABS	0.27	-0.10	-0.18	-0.23	0.14	-0.01	0.06	0.04	0.18	-0.06	0.14	1.00	1.21

Coefficients in bold are significant at the 0.01 level

Variable definitions:
DAMJC_ABS = Absolute value of discretionary accruals measured using the current version of the modified Jones model. ACC_STD = 1 if the company reports under IFRS and 0 otherwise. B4 = 1 if the firm is audited by big 4 and 0 otherwise. MV = natural log of market capitalisation. MB = market to book ratio measured by market capitalisation divided by total assets. TDTA = leverage measured by total debt divided by total assets multiplied by 100. SHARES_CHANGE: proportion change in number of common shares for the year. GROWTH = proportion change in sales for the year. LAGLOSS = dummy equals 1 if firm reported a loss in the previous year and 0 otherwise. ROA = return on assets measured as net income divided by average total assets multiplied by 100. CFO_ABS = Absolute value of cash flows from operations scaled by lagged of total assets. CAC_ABS = Absolute value of the lag of current accruals scaled by lagged of total assets.

5.4 Regression Results

The results in Tables 12, 13, 14, and 15 are estimated using Ordinary Least Squares (OLS) and in Tables 16 and 17 the results are based on probit regression - all results are reported using White adjusted standard errors. All models are significant at the 1% level (p-value < 0.01) and include year dummies for all years from 2003-2007 to control for the years (2003 and 2004) when IFRS was not adopted.

5.4.1 Discretionary Accruals Regression Results

The results reported in Table 12 show there is a negative relationship (significant at 5% and 10% confidence intervals) between IFRS reporting and discretionary accruals estimated using the three measures described earlier. The results support the first hypothesis that IFRS reporting mitigates earnings management in general. The results also show a significant negative association between the big four auditor variable and earnings management which aligns with the prior literature (Becker et al., 1998). The control variable results are largely in line with expectations. More specifically, the results show a negative association between firm size (measured by the natural log of market value) and earnings management suggesting that bigger firms manage earnings less. Whereas for earning management incentives, the results suggest a positive association between earnings management and each of the market

to book ratio, leverage and the change in number of shares variables. These results are in the expected direction and show that firms with relatively high capital market incentives and high leverage have higher levels of earnings management.

The results suggest that companies experiencing high growth in sales have relatively higher earnings management levels. However, firms reporting losses in the previous year do not have a significant association with earnings management levels. The results suggest, however, that firms reporting a higher return on assets have lower levels of earnings management. Finally, the results suggest a positive association between earnings management levels and operating cash flows and lagged current accruals which agree with expectations. These results, in general, support the first hypothesis that IFRS reporting has a positive impact on earnings quality through mitigating earnings management levels.

Table 12. OLS Results of Absolute Value of Discretionary Accruals

$EM = \beta_0 + \beta_1 ACC\_STD_{i,t} + \beta_2 B4_{i,t} + \beta_3 MV_{i,t} + \beta_4 MB_{i,t} + \beta_5 TDTA_{i,t} + \beta_6 SHARES\_CHANGE_{i,t} + \beta_7 GROWTH_{i,t} + \beta_8 LAGLOSS_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} CFO\_ABS_{i,t} + \beta_{11} CAC\_ABS_{i,t} + \beta_{12\text{-}16} YEAR_{2003\text{-}2007} + \mathcal{E}$				
		(1)	(2)	(3)
VARIABLES	Predicted sign	Model Damjc_abs	Model Damj_abs	Model Dacmm_abs
ACC_STD	?	-0.014**	-0.012*	-0.013*
		(-2.116)	(-1.863)	(-1.938)
B4	-	-0.014**	-0.011*	-0.015***
		(-2.405)	(-1.722)	(-2.694)
MV	-	-0.003**	-0.004***	-0.003*
		(-2.265)	(-2.933)	(-1.887)
MB	+	0.006***	0.006**	0.004*
		(2.579)	(2.453)	(1.662)
TDTA	+	0.000**	0.000***	0.000*
		(2.542)	(2.805)	(1.898)
SHARES_CHANGE	+	0.073***	0.068***	0.077***
		(2.783)	(2.688)	(2.932)
GROWTH	+	0.012***	0.010***	0.010**
		(3.035)	(2.864)	(2.548)
LAGLOSS	-	-0.007	-0.007	-0.002
		(-1.100)	(-1.033)	(-0.242)
ROA	-	-0.001**	-0.001***	-0.001**
		(-2.541)	(-2.677)	(-2.422)
CFO_ABS	+	0.104***	0.091***	0.102***
		(4.019)	(3.659)	(4.165)
CAC_ABS	+	0.201***	0.221***	0.212***
		(6.549)	(7.593)	(6.858)
Year dummies		Yes	Yes	Yes
Constant		0.102***	0.120***	0.094***
		(7.099)	(8.085)	(6.755)
Observations		2574	2574	2574
R-squared		0.251	0.239	0.254
Adj. R-squared		0.246	0.234	0.250

*Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.10*

Variable definitions:
DAMJ_ABS = Absolute value discretionary accruals measured using the modified Jones model. DAMJC_ABS = Absolute value discretionary accruals measured using the current version modified Jones model. DACMM_ABS = Absolute value discretionary accruals measured using the performance matched discretionary accruals measures. ACC_STD = 1 if the company reports under IFRS and 0 otherwise. B4 = 1 if the firm is audited by big 4 and 0 otherwise. MV = natural log of market capitalisation. MB = market to book ratio measured by market capitalisation divided by total assets. TDTA = leverage measured by total debt divided by total assets multiplied by 100. SHARES_CHANGE: proportion change in number of common shares for the year. GROWTH = proportion change in sales for the year. LAGLOSS = dummy equals 1 if firm reported a loss in the previous year and 0 otherwise. ROA = return on assets measured as net income divided by average total assets. CFO_ABS = Absolute value of cash flows from operations scaled by lagged of total assets. CAC_ABS = Absolute value of the lag of current accruals scaled by lagged of total assets. $YEAR_{2003\text{-}2007}$ = year dummies.

5.4.2 Signed Discretionary Accruals

In order to test the second hypothesis regarding the different effects of IFRS reporting on income increasing versus income decreasing earnings management, I partition the sample into observations with positive discretionary accruals and observations with negative discretionary accruals. The regression results reported in Table 13 for positive discretionary accruals suggest no significant association between

IFRS reporting and earnings management levels; whereas, the results reported in Table 14 suggest a significant association between IFRS reporting and income decreasing earnings management. These results confirm the second hypothesis that due to the relatively higher incentives for income increasing earnings management versus incentives for income decreasing earnings management, IFRS reporting is not sufficient to reduce positive discretionary accruals.

In terms of other variables, Tables 13 and 14 suggest that big four auditors impose higher constraints on positive discretionary accruals than on negative discretionary accruals – supporting the notion that income increasing earnings management are likely to be perceived as being more important than income decreasing earnings management. Similar significant results are found for the market to book ratio and shares change variables for positive discretionary accruals but not for negative discretionary accruals. As discretionary accruals are measured with error, I have repeated the tests with the exclusion of discretionary accruals in the range of 1% to -1% and the results are qualitatively similar to those reported in the chapter.

Table 13. OLS Results of Positive Discretionary Accruals

$EM = \beta_0 + \beta_1 ACC\_STD_{i,t} + \beta_2 B4_{i,t} + \beta_3 MV_{i,t} + \beta_4 MB_{i,t} + \beta_5 TDTA_{i,t} + \beta_6 SHARES\_CHANGE_{i,t} + \beta_7 GROWTH_{i,t} + \beta_8 LAGLOSS_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} CFO\_ABS_{i,t} + \beta_{11} CAC\_ABS_{i,t} + \beta_{12\text{-}16} YEAR_{2003\text{-}2007} + \varepsilon$				
		(1)	(2)	(3)
VARIABLES	Predicted sign	Model Damjcp	Model Damjp	Model dacmmp
ACC_STD	?	-0.005	0.003	-0.004
		(-0.550)	(0.290)	(-0.507)
B4	-	-0.024***	-0.019***	-0.020***
		(-3.527)	(-2.665)	(-2.867)
MV	-	-0.005**	-0.007***	-0.003
		(-2.552)	(-3.546)	(-1.520)
MB	+	0.007**	0.008**	0.006*
		(2.092)	(2.454)	(1.736)
TDTA	+	0.000**	0.000*	0.000
		(2.295)	(1.893)	(1.027)
SHARES_CHANGE	+	0.104***	0.085***	0.105***
		(3.135)	(2.887)	(3.247)
GROWTH	+	0.010*	0.012**	0.009*
		(1.797)	(2.348)	(1.824)
LAGLOSS	-	0.007	-0.002	0.010
		(0.844)	(-0.213)	(1.283)
ROA	+	0.002***	0.002***	0.001***
		(5.385)	(4.808)	(4.379)
CFO_ABS	+	0.191***	0.170***	0.175***
		(5.061)	(4.716)	(4.852)
CAC_ABS	+	0.182***	0.219***	0.227***
		(4.964)	(6.249)	(5.688)
Year dummies		Yes	Yes	Yes
Constant		0.071***	0.110***	0.057***
		(3.695)	(5.430)	(2.874)
Observations		1394	1391	1361
R-squared		0.304	0.281	0.323
Adj. R-squared		0.297	0.273	0.316

*Robust t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.10*

Variable definitions:
DAMJP = Positive discretionary accruals measured using the modified Jones model. DAMJCP = Positive discretionary accruals measured using the current version modified Jones model. DAMMJP = Positive discretionary accruals measured using the performance matched discretionary accruals measures. ACC_STD = 1 if the company reports under IFRS and 0 otherwise. B4 = 1 if the firm is audited by big 4 and 0 otherwise. MV = natural log of market capitalisation. MB = market to book ratio measured by market capitalisation divided by total assets. TDTA = leverage measured by total debt divided by total assets multiplied by 100. SHARES_CHANGE: proportion change in number of common shares for the year. GROWTH = proportion change in sales for the year. LAGLOSS = dummy equals 1 if firm reported a loss in the previous year and 0 otherwise. ROA = return on assets measured as net income divided by average total assets multiplied by 100. CFO_ABS = Absolute value of cash flows from operations scaled by lagged of total assets. CAC_ABS = Absolute value of the lag of current accruals scaled by lagged of total assets. $YEAR_{2003\text{-}2007}$ = year dummies.

Table 14. OLS Results of Negative Discretionary Accruals

$EM = \beta_0 + \beta_1 ACC\_STD_{i,t} + \beta_2 B4_{i,t} + \beta_3 MV_{i,t} + \beta_4 MB_{i,t} + \beta_5 TDTA_{i,t} + \beta_6 SHARES\_CHANGE_{i,t} + \beta_7 GROWTH_{i,t} + \beta_8 LAGLOSS_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} CFO\_ABS_{i,t} + \beta_{11} CAC\_ABS_{i,t} + \beta_{12\text{-}16} YEAR_{2003\text{-}2007} + \mathcal{E}$				
		(1)	(2)	(3)
VARIABLES	Predicted sign	Model Damjcn	Model Damjn	Model dacmmn
ACC_STD	?	-0.017*	-0.019**	-0.021**
		(-1.697)	(-1.987)	(-2.160)
B4	-	-0.002	0.001	-0.010
		(-0.243)	(0.069)	(-1.110)
MV	-	-0.003	-0.003	-0.002
		(-1.316)	(-1.199)	(-0.922)
MB	+	0.003	-0.000	0.000
		(0.670)	(-0.068)	(0.057)
TDTA	+	0.001*	0.001**	0.000
		(1.816)	(2.077)	(1.278)
SHARES_CHANGE	+	0.030	0.031	0.028
		(0.797)	(0.787)	(0.785)
GROWTH	+	0.012**	0.008*	0.008
		(2.284)	(1.667)	(1.489)
LAGLOSS	-	-0.007	0.003	-0.001
		(-0.687)	(0.335)	(-0.062)
ROA	-	-0.002***	-0.002***	-0.002***
		(-5.775)	(-5.146)	(-5.475)
CFO_ABS	+	0.090**	0.087**	0.079**
		(2.474)	(2.355)	(2.231)
CAC_ABS	+	0.219***	0.219***	0.174***
		(5.443)	(5.207)	(4.263)
Year dummies		Yes	Yes	Yes
Constant		0.099***	0.114***	0.071***
		(4.417)	(4.902)	(3.624)
Observations		1180	1183	1213
R-squared		0.321	0.300	0.289
Adj. R-squared		0.313	0.291	0.280

Robust t-statistics in parentheses
**** p<0.01, ** p<0.05, * p<0.10*
Variable definitions:
DAMJN = Negative discretionary accruals measured using the modified Jones model. DAMJCN = Negative discretionary accruals measured using the current version modified Jones model. DAMMJN = Negative discretionary accruals measured using the performance matched discretionary accruals measures. ACC_STD = 1 if the company reports under IFRS and 0 otherwise. B4 = 1 if the firm is audited by big 4 and 0 otherwise. MV = natural log of market capitalisation. MB = market to book ratio measured by market capitalisation divided by total assets. TDTA = leverage measured by total debt divided by total assets multiplied by 100. SHARES_CHANGE: proportion change in number of common shares for the year. GROWTH = proportion change in sales for the year. LAGLOSS = dummy equals 1 if firm reported a loss in the previous year and 0 otherwise. ROA = return on assets measured as net income divided by average total assets multiplied by 100. CFO_ABS = Absolute value of cash flows from operations scaled by lagged of total assets. CAC_ABS = Absolute value of the lag of current accruals scaled by lagged of total assets. $YEAR_{2003\text{-}2007}$ = year dummies.

5.4.3 Audit Quality Effect

Table 15 reports the results of partitioning the sample into firms audited by big four auditors and firms audited by non-big four auditors. The results suggest a significant negative association between IFRS reporting and earnings management levels for firms audited by big four auditors but not for firms audited by non-big four auditors. The result supports the third hypothesis and I explain the relationship by the relatively higher quality and experience of big four auditors compared with non-big four auditors – the higher quality enabling a better utilisation of IFRS as compared to UK GAAP. Table 15 also suggests that the effect of capital market incentives (market to book ratio, share change and growth variables) on earnings management is weaker for firms audited by big four auditors than those audited by non-big four auditors.

Table15. OLS Results of Big Four versus Non Big Four Subsamples

$EM = \beta_0 + \beta_1 ACC\_STD_{i,t} + \beta_2 B4_{i,t} + \beta_3 MV_{i,t} + \beta_4 MB_{i,t} + \beta_5 TDTA_{i,t} + \beta_6 SHARES\_CHANGE_{i,t} + \beta_7 GROWTH_{i,t} + \beta_8 LAGLOSS_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} CFO\_ABS_{i,t} + \beta_{11} CAC\_ABS_{i,t} + \beta_{12\text{-}16} YEAR_{2003\text{-}2007} + \mathcal{E}$							
		(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Predicted sign	Model Non b4 Damjc_abs	Model b4 Damjc_abs	Model Non b4 Damj_abs	Model b4 Damj_abs	Model Non b4 Dacmmabs	Model b4 Dacmm_abs
ACC_STD	?	-0.012	-0.020**	-0.007	-0.023**	-0.009	-0.019**
		(-1.064)	(-2.249)	(-0.702)	(-2.471)	(-0.857)	(-2.245)
MV	-	-0.005	-0.002	-0.005	-0.004**	-0.005	-0.001
		(-1.535)	(-1.346)	(-1.529)	(-2.141)	(-1.558)	(-0.749)
MB	-	0.012***	0.002	0.012***	0.000	0.010***	-0.000
		(3.332)	(0.520)	(3.146)	(0.132)	(2.744)	(-0.038)
TDTA	+	0.001*	0.000**	0.000	0.001***	0.001*	0.000
		(1.676)	(1.967)	(1.452)	(2.601)	(1.778)	(1.014)
SHARES_CHANGE	+	0.109***	0.028	0.098***	0.035	0.119***	0.024
		(2.878)	(0.853)	(2.774)	(0.991)	(3.215)	(0.680)
GROWTH	+	0.013***	0.009	0.011**	0.009	0.011**	0.007
		(2.828)	(1.268)	(2.553)	(1.313)	(2.455)	(0.983)
LAGLOSS	-	-0.019*	-0.001	-0.017*	0.001	-0.015	0.005
		(-1.861)	(-0.117)	(-1.679)	(0.110)	(-1.467)	(0.601)
ROA	-	-0.000	-0.001***	-0.000	-0.001***	-0.000	-0.001***
		(-0.812)	(-3.040)	(-1.159)	(-2.737)	(-0.957)	(-2.767)
CFO_ABS	-	0.104***	0.100**	0.082***	0.110***	0.099***	0.108***
		(3.224)	(2.380)	(2.676)	(2.689)	(3.262)	(2.636)
CAC_ABS	+	0.242***	0.149***	0.278***	0.154***	0.229***	0.186***
		(5.212)	(3.849)	(6.530)	(4.163)	(5.002)	(4.544)
Year dummies		Yes	Yes	Yes	Yes	Yes	Yes
Constant		0.092***	0.094***	0.101***	0.118***	0.094***	0.078***
		(2.754)	(5.076)	(3.109)	(5.886)	(2.924)	(4.416)
Observations		1084	1490	1084	1490	1084	1490
R-squared		0.253	0.202	0.247	0.194	0.251	0.206
Adj. R-squared		0.243	0.195	0.237	0.186	0.241	0.198

Robust t-statistics in parentheses
**** p<0.01, ** p<0.05, * p<0.10*

Variable definitions:
DAMJ_ABS = Absolute value discretionary accruals measured using the modified Jones model. DAMJC_ABS = Absolute value discretionary accruals measured using the current version modified Jones model. DACMM_ABS = Absolute value discretionary accruals measured using the performance matched discretionary accruals measures. ACC_STD = 1 if the company reports under IFRS and 0 otherwise. B4 = 1 if the firm is audited by big 4 and 0 otherwise. MV = natural log of market capitalisation. MB = market to book ratio measured by market capitalisation divided by total assets. TDTA = leverage measured by total debt divided by total assets. SHARES_CHANGE: proportion change in number of common shares for the year. GROWTH = proportion change in sales for the year. LAGLOSS = dummy equals 1 if firm reported a loss in the previous year items and 0 otherwise. ROA = return on assets measured as net income divided by average total assets multiplied by 100. CFO_ABS = Absolute value of cash flows from operations scaled by lagged of total assets. CAC_ABS = Absolute value of the lag of current accruals scaled by lagged of total assets. $YEAR_{2003\text{-}2007}$ = year dummies.

5.4.4 Earnings Benchmark Tests

Table 16 reports the probit regression results for the effect of IFRS reporting on the probability of reporting a small positive profit. The results suggest a significant negative association between IFRS reporting and SMALL_POSITIVE (at the 0.01 level) which means that companies adopting IFRS are less likely to engage in earnings management practices to avoid reporting a loss. In addition, the results of splitting the sample into firms audited by big four auditors and non-big four auditors suggest that only firms audited by big four auditors show a significant negative association between IFRS reporting and reporting small positive profits. These results confirm the discretionary accruals results reported in the previous section and support hypothesis three which argues that audit quality plays a key role in ensuring IFRS reporting and, therefore, firms audited by big four auditors are more likely to benefit from IFRS reporting and show a mitigating effect of IFRS.

Table 17 reports profit regression results for the effect of reporting under IFRS on the probability of reporting small increases in profit. The results suggest a significant negative association between IFRS reporting and SMALL_INCREASE (at 0.05 level) which means that companies adopting IFRS are less likely to engage in earnings management practices to report small increases in profit between 0% and 1%. Furthermore, in the same vein as above, the results of splitting the sample into firms audited by big four auditors and non-big four auditors suggest that only firms audited by big four auditors show a significant negative association between IFRS reporting and reporting small increases in profits. These results again confirm the results reported in the previous section related to hypothesis three and suggest that the results are not sensitive to the choice of discretionary accruals measures.

Table16. Probit Regression Results of Probability of Reporting a Small Profit

$EM = \beta_0 + \beta_1 ACC\_STD_{i,t} + \beta_2 B4_{i,t} + \beta_3 MV_{i,t} + \beta_4 MB_{i,t} + \beta_5 TDTA_{i,t} + \beta_6 SHARES\_CHANGE_{i,t} + \beta_7 GROWTH_{i,t} + \beta_8 LAGLOSS_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} CFO\_ABS_{i,t} + \beta_{11} CAC\_ABS_{i,t} + \beta_{12\text{-}16} YEAR_{2003\text{-}2007} + \mathcal{E}$				
		(1)	(2)	(3)
VARIABLES		Model	Model	Model
	Predicted sign	small_positive	Non B4	B4
ACC_STD	?	-0.235***	-0.078	-0.302**
		(-2.582)	(-0.571)	(-2.391)
B4	-	0.082		
		(1.058)		
MV	-	0.009	0.005	0.018
		(0.442)	(0.124)	(0.820)
MB	+	-0.397***	-0.275***	-0.542***
		(-5.156)	(-3.035)	(-6.688)
TDTA	+	0.006***	0.006*	0.005**
		(2.982)	(1.857)	(2.392)
SHARES_CHANGE	+	-0.635**	-0.872**	-0.402
		(-2.300)	(-2.247)	(-1.062)
GROWTH	+	-0.001	0.008	-0.032
		(-0.020)	(0.180)	(-0.445)
LAGLOSS	-	-0.136*	-0.208	-0.079
		(-1.695)	(-1.603)	(-0.771)
ROA	+	0.014***	0.017***	0.013***
		(6.796)	(5.902)	(4.345)
CFO_ABS	+	-2.761***	-1.785***	-3.818***
		(-4.707)	(-2.681)	(-6.177)
CAC_ABS	+	-0.549	-0.086	-1.201**
		(-1.404)	(-0.171)	(-1.988)
Constant		-0.144	-0.348	0.097
		(-0.705)	(-0.805)	(0.353)
Year dummies		Yes	Yes	Yes
Observations		2620	1097	1523
Pseudo R^2		0.1541	0.1494	0.1686

Robust z-statistics in parentheses
**** p<0.01, ** p<0.05, * p<0.10*

Variable definitions:
SMALL_POSITIVE = 1 if reported net income deflated by lagged total assets between 0 and 5% and 0 otherwise. ACC_STD = 1 if the company reports under IFRS and 0 otherwise. B4 = 1 if the firm is audited by big 4 and 0 otherwise. MV = natural log of market capitalisation. MB = market to book ratio measured by market capitalisation divided by total assets. TDTA = leverage measured by total debt divided by total assets multiplied by 100. SHARES_CHANGE: proportion change in number of common shares for the year. GROWTH = proportion change in sales for the year. LAGLOSS = dummy equals 1 if firm reported a loss in the previous year and 0 otherwise. ROA = return on assets measured as net income divided by average total assets multiplied by 100. CFO_ABS = Absolute value of cash flows from operations scaled by lagged of total assets. CAC_ABS = Absolute value of the lag of current accruals scaled by lagged of total assets. $YEAR_{2003\text{-}2007}$ = year dummies.

Table17. Probit Regression Results of Probability of Reporting a Small Increase in Profit

$EM = \beta_0 + \beta_1 ACC\_STD_{i,t} + \beta_2 B4_{i,t} + \beta_3 MV_{i,t} + \beta_4 MB_{i,t} + \beta_5 TDTA_{i,t} + \beta_6 SHARES\_CHANGE_{i,t} + \beta_7 GROWTH_{i,t} + \beta_8 LAGLOSS_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} CFO\_ABS_{i,t} + \beta_{11} CAC\_ABS_{i,t} + \beta_{12\text{-}16} YEAR_{2003\text{-}2007} + \mathcal{E}$				
		(1)	(2)	(3)
VARIABLES		Model	Model	Model
	Predicted sign	small_increase	Non B4	B4
ACC_STD	?	-0.261**	-0.118	-0.323**
		(-2.429)	(-0.735)	(-2.063)
B4	-	-0.139		
		(-1.446)		
MV	-	0.086***	0.043	0.106***
		(3.622)	(0.809)	(3.704)
MB	+	-0.187***	-0.176*	-0.136*
		(-2.742)	(-1.729)	(-1.890)
TDTA	+	-0.003	0.001	-0.006*
		(-1.236)	(0.336)	(-1.763)
SHARES_CHANGE	+	-0.127	-0.117	-0.230
		(-0.386)	(-0.252)	(-0.481)
GROWTH	+	0.033	0.036	0.018
		(0.823)	(0.695)	(0.380)
LAGLOSS	-	-0.797***	-0.785***	-0.857***
		(-7.823)	(-5.310)	(-5.922)
ROA	-	-0.001	0.001	-0.001
		(-0.574)	(0.411)	(-0.275)
CFO_ABS	+	-0.621	-0.004	-2.418***
		(-1.162)	(-0.011)	(-3.306)
CAC_ABS	+	-1.086**	-1.132*	-1.543*
		(-2.088)	(-1.732)	(-1.958)
Constant		-1.417***	-1.306**	-1.463***
		(-5.752)	(-2.399)	(-4.505)
Year dummies		Yes	Yes	Yes
Observations		2620	1097	1523
Pseudo R^2		0.1155	0.1200	0.1258

Robust z-statistics in parentheses
**** p<0.01, ** p<0.05, * p<0.10*

Variable definitions:
SMALL_INCREASE = 1 if reported net income deflated by lagged total assets between 0 and 1% and 0 otherwise. ACC_STD = 1 if the company reports under IFRS and 0 otherwise. B4 = 1 if the firm is audited by big 4 and 0 otherwise. MV = natural log of market capitalisation. MB = market to book ratio measured by market capitalisation divided by total assets. TDTA = leverage measured by total debt divided by total assets multiplied by 100. SHARES_CHANGE: proportion change in number of common shares for the year. GROWTH = proportion change in sales for the year. LAGLOSS = dummy equals 1 if firm reported a loss in the previous year and 0 otherwise. ROA = return on assets measured as net income divided by average total assets multiplied by 100. CFO_ABS = Absolute value of cash flows from operations scaled by lagged of total assets. CAC_ABS = Absolute value of the lag of current accruals scaled by lagged of total assets. $YEAR_{2003\text{-}2007}$ = year dummies.

6. Robustness Checks

I have conducted a number of robustness and sensitivity checks as follows. Firstly, I have included utility companies to maximize the sample. However, some previous earnings management studies (e.g. Francis and Yu, 2009) exclude utilities firms due to their different accruals structure. Therefore, I have repeated the tests with the exclusion of utility companies. Secondly, while I have used three of the discretionary accruals measures to conduct the main tests, I have repeated the tests using the Jones model (Jones, 1991). In addition, while I used a minimum of 10 firms for each SIC-year combination as a condition for a firm to be included in the sample in the estimation stage of the discretionary accruals measures, I have repeated the tests using a minimum of 20 firms in each SIC-year combination. In addition, I have repeated the tests excluding year 2005 because the first year of IFRS adoption may be regarded as a transition period in which reported earnings may be affected by transitional changes. For all the above mentioned tests, results (untabulated[27]) are

[27] All untabulated results are available upon request from the authors.

qualitatively similar to those reported in the paper which suggest that the results are robust to all the above mentioned robustness tests.

The second group of robustness checks I conducted is concerned with a number of econometric issues. For the discretionary accruals tests, the use of discretionary accruals as a dependent variable may raise issues for the normality assumption of ordinary least squares regression. Therefore, I have repeated the tests using the natural logarithm of discretionary accruals. Moreover, I have repeated the tests using the maximum likelihood random effects model for the same reason as this technique does not require normality. In the earnings benchmark tests, I used probit regression in the main tests because the dependent variable in these models is a dummy variable which takes a value of 0 and 1; I have repeated the earnings benchmark tests using logistic regression. For all the above mentioned tests, the results (untabulated) are qualitatively similar to those reported in the paper.

In addition, the sample contained firm-year observations for UK listed firms and includes firms listed in the main market and AIM. I have repeated the tests with the inclusion of an additional control variable to control for the type of market on which the firm is listed and the results reported in table 18 are qualitatively similar to those reported in the paper. However, when I conducted separate tests for the main market and AIM subsamples (untabulated), the results show stronger relationship between earnings management and IFRS for the AIM subsample. This may be explained as a result of the initially higher levels of earnings management for AIM firms compared with main market firms, and I believe this research topic is worth further exploration.

Table 18. Profit Regression Results of Probability of Reporting a Small Profit and Small Increase in Profit

$EM = \beta_0 + \beta_1 ACC\_STD_{i,t} + \beta_2 B4_{i,t} + \beta_3 MV_{i,t} + \beta_4 MB_{i,t} + \beta_5 TDTA_{i,t} + \beta_6 SHARES\_CHANGE_{i,t} + \beta_7 GROWTH_{i,t} + \beta_8 LAGLOSS_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} CFO\_ABS_{i,t} + \beta_{11} CAC\_ABS_{i,t} + \beta_{12} TYPE_{i,t} + \beta_{13\text{-}17} YEAR_{2003\text{-}2007} + \mathcal{E}$		
	(1)	(2)
VARIABLES	Model	Model
	SMALL_POSITIVE	SMALL_INCREASE
ACC_STD	-0.269***	-0.391***
	(-2.818)	(-3.210)
B4	0.067	-0.200**
	(0.854)	(-1.966)
MV	-0.004	0.044
	(-0.160)	(1.624)
MB	-0.392***	-0.175***
	(-5.094)	(-2.617)
TDTA	0.006***	-0.003
	(3.001)	(-1.178)
SHARES_CHANGE	-0.613**	-0.064
	(-2.219)	(-0.194)
GROWTH	0.004	0.045
	(0.101)	(1.150)
LAGLOSS	-0.136*	-0.794***
	(-1.693)	(-7.701)
ROA	0.014***	-0.001
	(6.772)	(-0.589)
CFO_ABS	-2.775***	-0.640
	(-4.794)	(-1.217)
CAC_ABS	-0.534	-0.977*
	(-1.367)	(-1.888)
TYPE	0.108	0.405***
	(1.095)	(3.302)
Year dummies	Yes	Yes
Constant	-0.032	-1.048***
	(-0.145)	(-3.892)
Observations	2620	2620
Pseudo R^2	0.1546	0.1234

Robust z-statistics in parentheses
**** p<0.01, ** p<0.05, * p<0.10*
Variable definitions:
SMALL_POSITIVE = 1 if reported net income deflated by lagged total assets between 0 and 5% and 0 otherwise. SMALL_INCREASE = 1 if reported net income deflated by lagged total assets between 0 and 1% and 0 otherwise. ACC_STD

= 1 if the company reports under IFRS and 0 otherwise. B4 = 1 if the firm is audited by big 4 and 0 otherwise. MV = natural log of market capitalisation. MB = market to book ratio measured by market capitalisation divided by total assets. TDTA = leverage measured by total debt divided by total assets multiplied by 100. SHARES_CHANGE: proportion change in number of common shares for the year. GROWTH = proportion change in sales for the year. LAGLOSS = dummy equals 1 if firm reported a loss in the previous year and 0 otherwise. ROA = return on assets measured as net income divided by average total assets multiplied by 100. CFO_ABS = Absolute value of cash flows from operations scaled by lagged of total assets. CAC_ABS = Absolute value of the lag of current accruals scaled by lagged of total assets. TYPE= 1 if the firm/year is listed on the London Stock Exchange main market and 0 if listed in London Stock Exchange AIM market. $YEAR_{2003-2007}$ = year dummies.

Using panel data sets always raise concerns regarding the reliability of results and possibilities of autocorrelation and heteroscedasticity. To test if the results are subject to this limitation, I have repeated the tests using the Newey-West regression with correction for first order autocorrelation and heteroscedasticity (used in Francis and Yu, 2009). Moreover, I used the two way clustering approach suggested by Petersen (2009) to obtain standard errors corrected for firm id and year. Some recent studies (e.g. Caramanis and Lennox, 2008) used truncated regression because discretionary accruals measures are truncated at zero. Therefore, I have repeated the tests using this type of regression and the results are qualitatively similar to those presented here. Overall, the results from the previously mentioned different estimation techniques suggest that the findings of this paper are not sensitive to a specific type of regression or estimation method.

Finally, regarding model specification, there is no agreement in accounting research on a specific set of control variables to be used either in the discretionary accruals tests or the earnings benchmark tests. Therefore, I have repeated the tests with the inclusion of total assets instead of market capitalisation. I have also tested the models by dropping return on assets because it has been argued that it may be affected by earnings management which could bias the results (McNichols, 2000). Moreover, I used current loss instead of lagged loss. The results are robust to these different model specifications.

7. Conclusions

The purpose of this study has been to test empirically (with a range of robustness checks) the effect of IFRS reporting on earnings management in the UK. I find that IFRS reporting has a mitigating effect on earnings management and that this mitigation effect is stronger for income decreasing earnings management than for income increasing earnings management; this is because of the relatively higher incentives to manage earnings upwards as compared to managing earnings downwards. I also find evidence that the effect of IFRS reporting on earnings management is conditional on audit quality.

The results reported in this paper agree with prior results of Barth et al (2008), Horton and Serafeim (2009), and Christensen et al.(2008) but disagree with the results reported in Van tendeloo and Vanstraelen (2005), Jeanjean and Stolowy (2008), and Aussenegg et al.(2008). Given the limitations discussed in this paper, the results conclude that reporting via relatively higher quality accounting standards will result in lower levels of earnings management especially in cases of strong enforecment mechanisns as the case in the UK.

A significant assumption in the tests is that the incentives to manage earnings were constant under both UK GAAP and IFRS. However, it is worth noting that IFRS adoption could have led to a change in management incentives to manage earnings. For example, net income reported under IFRS has become more volatile and hence, the focus on managing the bottom-line net income may have changed. While testing this argument empirically lies outside the scope of the paper, it represents a potential extension to the current research.

The results of this paper have implications for earnings management research. Prior earnings management studies extensively use the absolute value of discretionary accruals as a measure of the combined effect of earnings management and use positive and negative discretionary accruals for robustness checks. The results reported in this study suggest that the effect of some variables can be different when comparing income increasing versus income decreasing earning management. For example, I document a significant big four auditor effect on positive discretionary accruals but not for negative discretionary accruals. Therefore, there is evidence of the need to use separate tests for both directions of managing earnings.

This study has broader policy implications. The results suggest that reporting under IFRS results in significantly lower levels of earnings management and, therefore, better earnings quality. However, this improvement might be limited depending on firms' incentives to manage earnings and audit quality. The results compared reporting IFRS with reporting under UK GAAP. These results need to generalised to other countries with caution as the effects of IFRS could be different from one county to the other depending on other factors such as the quality of enforcement or other corporate governance mechanisms.

The current work could be extended in a number of directions by future research. One possible area for future research is to examine whether the effect of IFRS reporting is conditional on auditor industry experience rather than just a big four/non big four quality variable. A second possible issue for

consideration is the analysis of individual IFRSs to check differences against local GAAP and determine if any differences allow for more or less earnings management. Thirdly, further research could test the effect of the mandatory adoption and reporting in other countries combined with investigating the enforcement of IFRS in these counties. Finally, further research could test differences between main market and AIM market with regard to IFRS adoption.

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