The Effects of IFRS Adoption on Earnings Management: Evidence from the UK Private Firms

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Abstract

The purpose of this study is to examine the effects of adopting International Financial Reporting Standards (IFRS) on earnings management of private firms. With a sample of the UK private firms from year 2003 to 2010, we use discretionary accruals to detect earnings management based on Modified Jones Model. We also examine that whether effects of IFRS adoption are conditional on audit quality and firm size. The results show that IFRS adoption does not reduce the level of earnings management; on the contrary earnings manipulation is intensified after the adoption of new accounting standards among the UK private firms. Moreover, the results indicate that higher audit quality does not work as a constraint on earnings manipulation but increases the level of earnings management for IFRS adopters with income-decreasing earnings management. In addition, larger firm size intensifies earnings management for IFRS adopters with income-increasing accruals.

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1. Introduction

The objective of this study is to examine the impact of adopting International Financial Reporting Standards (IFRS) on earnings management using a sample of UK private firms.

Since 2005, listed firms in the European Union were required to report consolidated financial statements under IFRS issued by the European Parliament. Prior to 2005, firms in the EU had the choice either to follow national Generally Accepted Accounting Principles (GAAP) or IFRS. The aim of these new accounting standards is to obtain comparability and transparency of financial reports. Apart from comparability and transparency, higher reporting quality is also expected. This means that the new international accounting standards should help investors to learn and compare the companies in a better way. Even though the requirement is only subjected to public firms, some privately held firms have voluntarily adopted or switched to IFRS. This adoption of these new standards was really a big change in financial reporting and got the attention over the past several years. Although IFRS aims to provide better financial reports, some studies argue that IFRS may have negative influence on earnings management (Ormrod and Taylor, 2004). For instance the greater flexibility provided by IFRS comparing to local GAAP, will result in a higher degree of earnings manipulation practices. Considering of the uncertain influences, it is meaningful to examine the effects on earnings management empirically after IFRS-adoption.

This paper contributes to the existing literature by exploring the effects of IFRS adoption on earnings management for non-listed companies, since most of the relevant studies only focused on public firms. We examine the impacts of IFRS adoption on earnings management using data of the UK's privately held firms. The time period is from 2003 to 2010. The United Kingdom is chosen for this study because it has the largest number of private firms in Europe and it is a strong investor protection country with stringent national accounting standards.

Measures on accounting quality are based on discretionary accruals in accordance with the Modified Jones Model (Jones, 1991; Dechow, 1995). As a practical matter, the original Modified Jones Model (Jones, 1991) with time-series formulation has been criticized for considerable imprecision when implemented empirically. According to Subramanyam (1996) and Defond (1994), we use a cross-sectional version of this model which is now dominating the earnings management literature.

Previous studies use the absolute value of discretionary accruals as a measure of earnings management, we split discretionary accruals into absolute, negative and positive discretionary accruals to examine whether IFRS adoption has different impacts on earnings management considering of the directions of managed earnings. We also examine that whether firm features might affect the level of earnings management for IFRS adopters. We focus on the auditing quality, firm size, sales growth, cash flow from operations and leverage of the companies.

The results of this empirical study show IFRS adoption is positively related to absolute discretionary accruals significantly, which indicate that IFRS-adoption firms are related with stronger earnings management. However, audit quality does not affect earnings management for IFRS adopters with income-increasing manipulation. In fact, higher audit quality causes earnings management to a higher level for IFRS adopters with income-decreasing accruals. In addition, larger firm size intensifies earnings management for IFRS adopters with income-increasing accruals.

The structure of the paper is as follows. Section 2 reviews the related literature on earnings management and ends up with hypotheses. Then Section 3 outlines research design referred to sample selection and research model. The results of empirical analysis are presented in Section 4. In the end, conclusions and limitations will be given in Section 5.

2. Literature and Hypotheses

2.1 IFRS adoptions in the UK

European Union required companies listed in European countries to adopt IFRS from January 1st 2005, so all the UK listed companies need to adopt IFRS and prepare their consolidated financial statements under the new standards. Since the new standards directly influence accounting quality, it is necessary to understand the effects of this change on accounting quality. International Accounting Standards Board (IASB) expects the new standards to enhance the comparability and transparency of financial reporting and help users make better decisions (EC Regulation No. 1606/2002).

The UK is a strong investor protection country. Its original national accounting approaches comply most with International Accounting Standards which later became International Financial Reporting Standards (Haller, 2002). Although the UK GAAP

and IFRS are quite close, differences still exist between the two standards. Horton and Serafeim (2009) highlight six differences, say goodwill, share-based payments, taxation, leases, employee benefits and financial instruments. IFRS tend to be principle-based standards, which leave more space for professional judgment compared with rule-based UK GAAP (Nobes, 2006). Taking goodwill for instance, under IFRS goodwill should take impairment test annually, while it is tended to be amortized under UK GAAP. Under the IFRS approach, managers are able to use their accounting decisions to manipulate impairment test of goodwill which could affect earnings numbers. Callao (2010) points out that the principle-based standards could provide more flexibility in interpretation, thus resulting in higher degree of earnings manipulation. Iatridis and Joseph (2005) also argue that flexibility in new standards may enhance the scope of income smoothing. Ball (2006) identifies that fair value accounting would increase the opportunities of manipulation. Heemskerk et al. (2006) state that although the new standards are very stringent, the implementation of IFRS comes with a lot of managers' subjective judgments. Therefore, the quality of financial reports might not improve as expected. Soderstorm et al. (2007) argue that it is difficult to give a general view of whether IFRS adoption has a positive impact on improving the quality of accounting reports.

2.2 Influence of IFRS adoption on earnings management

A lot of studies on this subject have been done since the mandatory implementation of IFRS for listed firms in 2005. The main research is the comparison between effects on earning management of listed firms under IFRS and national original accounting standards. Proponents argue that IFRS with a high-quality set of standards would increase the quality of financial reporting and could mitigate levels of earnings management (Armstrong 2009). While others point out that IFRS adoption, only representing pure accounting changes, could not provide the expected benefits (Mara, 2011). The new accounting standards may even increase the extents of earnings management and deteriorate financial reporting quality (Watts 2006).

To figure out the impact of IFRS adoption on earnings management, we need to understand what earnings management constitutes. The definition of earnings management is available in academic literature, although regulators do not define it explicitly. Definition by Healy and Wahlen (1999) is widely accepted:

"Earnings management occurs when managers use their own judgment in financial reporting and in structuring transactions to alter financial reports to either mislead

some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers."

Actually, earnings management is based on accrual accounting. Since accrual accounting is to record revenues and expenses in the incurring period, with cash probably received and paid in other periods, it creates opportunities for managers to manipulate earnings.

However, it does not mean that earnings management is the same to fraud. Dechow et al. (2000) identify three practices on this definition. They are fraudulent accounting practice, earnings management, and legitimate exercise of accounting discretion. The first one is illegal and forbidden by regulators, while the last two are allowed. The key difference between the second and third is the intention of management practices. If the practice intention is to deceive related parties, then the practice is called earnings management; if the practice is not to harm interests of any related parties, the practice is called legal exercise of accounting discretion. In this paper, we assume that earnings management is a bad thing.

Healy and Wahlen (1999) point out the incentives for earnings management of publicly held firms. The main incentives come from capital market expectation, contracts based on terms of reported accounting numbers and governmental regulation. However, differences exist between public and private firms in the incentives of earnings management. And the opinions are mixed among scholars. Some argue that private firms involve in more earnings manipulation than public firms. First, privately held firms have more concentrated ownership than public firms (Burgstahler et al., 2006). Related parties like stakeholders or capital providers can get access to corporate information through private channels other than the public information. Moreover, financial reports of private firms are not widely distributed to the public as listed firms. Therefore, private firms have fewer incentives to provide high quality financial information. Second, the major capital providers for private firms are usually banks. The agency problems between banks and owners/management would encourage private firms to manipulate earnings (Vander Bauwhede and Willekens, 2004).

On the other hand, others argue that private firms engage less in earnings management compared with public firms. Because private firms' ownership is highly concentrated, the agency problem is less severe than that of public firms. Therefore, private firms have fewer incentives to cover the unsatisfied economic firm performance. Besides, since public firms need to meet certain performance benchmark to attract investors in

the market, they have more incentives manipulating numbers on financial reports than their counterparts (Givoly et al., 2010).

Since the incentive is not observed directly, the problem is to discern whether managers use the accounting numbers to deceive the stakeholders or maximize their personal interests. Different models have been developed by researchers to detect earnings management. Bath et al. (2008) use variability of the change in net income, mean ratio of the variability of the change in net income, and Spearman correlation between accruals and cash flow as proxies for earnings management. Daske and Gebhardt (2006) use disclosure quality score to detect earnings management. Henrik (2010) analyzes earnings management based on neural networks. Others choose accrual-based models with different forms, like the DeAngelo Model, the Healy Model, the Jones Model, the Industry Model, and the Modified Jones Model (Dechow, 1995). Among all the measures, we use discretionary accruals, the most widely used measurement to detect possible manipulation of a firm's financial statements, as a proxy for earnings management. This measure is explained further in Section 3.

Using different measures, the impacts of IFRS adoption on earnings management are still an open issue for firms. There are a large number of literatures focusing on the effects of IFRS adoption for listed companies. Cai et al. (2008) examine 32 countries from year 2000 to 2006 and find declining earnings management after both voluntary and obliged adoption of IFRS. Aussenegg et al. (2008) also identify declining earnings management in 17 European countries and the extents vary depending on specific country factors like legal origin and tax system. They argue that IFRS require higher disclosure information which increases the manipulation risk of being detected, thus increasing the cost of earnings management. Barth et al. (2008) focus on 21 countries and exhibits firms' declining extents of earnings management, more value relevance of accounting amounts and timely loss recognition during the post-adoption periods. Their results indicate that firm adopting higher quality international accounting standards would have a higher quality financial reporting. It is in consistent with the finding of Christensen et al. (2008) that earnings management decreases and timely loss recognition rises after the adoption of IFRS in Germany and Sweden. Capkun et al. (2011) split samples into three groups: early adopters, late adopters and mandatory adopters from 29 countries. The results show that early adopters (firms adopting IFRS before 2005) engage less in earnings management, while late adopters (firms adopting IFRS in 2005) and mandatory adopters (firms which are mandated to apply IFRS only after 2005) engage higher levels of earnings management.

However, various studies suggest that IFRS have negative impacts on the quality of financial reporting. Callao (2010) examines 11 EU countries and the results show that earnings management has intensified after the adoption of IFRS, since discretionary accruals have increased in the period following implementation. Jeanjean, T. and Stolowy, H. (2008) (2008) concentrates on three IFRS first-time adopter countries, Australia, France and the UK. Their findings confirm that principle-based standards are not a sufficient condition to mitigate earnings management. Paola Paglietti (2009) using a sample of Italian firms indicates that accounting quality decreases after the adoption of IFRS considering of earnings management and timely loss recognition. Vanstraelen and Van Tendeloo (2005) investigate firms in Germany and find that the implementation of IFRS cannot be connected with lower earnings management. Guenther et al. (2009) argue that the extent of earnings management decreases only for voluntary IFRS adopters, while for mandatory adopters earnings management would be more severe after the adoption.

All the literatures mentioned above focus on listed firms, while studies analyzing the effects of IFRS on earnings management of unlisted firms are rare. Medhat (2010) analyzes unlisted firms of the UK using earnings benchmark tests and identifies that reporting under IFRS reduces levels of earnings management. Moritz and Zoltan (2013) examine German privately held companies. They divide the sample firms into four groups depending on different motivations for the accounting switch. The measurement of their earnings management is in line with Barth et al. (2008). Their results indicate that earning quality effects are primarily driven by one type of firms, which are young, fast growing and seeking access to public equity markets, while changes of earning quality is not significant to other three types private firms. Beuselinck et al. (2008) and Katz (2009) indentify that private firms with private equity enjoy higher earnings quality than non-PE sponsored firms after the voluntary adoption of IFRS. Cameran et al. (2011) use a sample of Italian private firms from year 2005 to 2008. Their measurement of accounting quality is based on earnings management and timely loss recognition. The results show that IFRS adoption does not improve financial reporting quality among private firms.

These divergent findings indicate that effect of IFRS adoption on earnings quality is still a pending issue for private firms. Barth et al. (2008) provide possible explanations for these mixed findings. One might be that the various studies focus on different countries and each country has its specific economic environment. Besides, different studies use different measurements covering different time periods. Another issue is that when controlling for different incentives, effectiveness of studies may also differs (Moritz and Zoltan, 2013).

2.3 Hypotheses Development

Previous studies show that the effects of IFRS adoption on earnings management are unclear both for public firms and private firms. In addition, the UK's national GAAP is already stringent, so the effects of new standards may be limited. Therefore, our first hypothesis is stated as follows:

Hypothesis 1a: IFRS adoption does not reduce the level of earnings management.

Previous literatures indicate that incentives to manipulate earnings upwards and downwards are different. Nelson et al. (2003) argue that managers tend to manipulate earnings upwards. They choose to increase the earnings in order to get more earnings-based bonuses. Burgstahler et al. (1997) use descriptive statistics of financial statements from year 1977 to 1994 and find earnings are indeed managed to a higher extent. Ashbaugh et al. (2003) argue that earnings overstatement is more common and is a greater concern for auditors. Teoh et al. (1998) point out discretionary accruals tends to be income increasing other than income decreasing before IPO.

On the contrary, Healy and Wahlen (1999) argue that earnings management can be both over- and undervalue earnings, since managers can manage both income-increasing earnings for compensation contracts and income-decreasing earnings for political costs when dealing with government or other regulators (Deegan and Unerman, 2006). Van Tendeloo (2007) argues managers tend to manage earnings downwards for tax deduction. Therefore, we also expect the effects of IFRS reporting are conditional on the direction of the managed earnings.

Hypothesis 1b: The effects of IFRS adoption on British private firms' earnings management are different between income-increasing earnings management and income-decreasing earnings management.

The U.K. Companies Act requires both public and private companies to file annual financial reports. Their financial reports should be audited if the company meets certain size criteria (Ball et al. 2005). A lot of studies examined the effects of audit quality on earnings management in public firms. Audit quality is captured by the size of the audit firms. If the company is audited by a Big4/5/6 auditor[1], then this company has high quality auditing. Previous studies provide evidence that high audit quality is

[1] Big 6 auditor refers to Deloitte & Touch, Ernst & Young, Arthur Andersen, Price Waterhouse, Coopers &Lybrand and Peat Marwick Mitchell from 1989 to 1998. Since Price Waterhouse merged with Coopers &Lybrand in 1998, we have Big 5. From 2002 till now, the Big 4 audit firms are remaining after the collapse of Arthur Andersen.

a constraint on earnings management (Becker et al. 1998; Zhou and Elder, 2003; Chen et al., 2005). The underlying rationale is that Big 4 auditors are more competent and independent than non-Big 4 ones. When an audit failure occurs, Big 4 audit firms have more to lose like brand name and reputation (Vander et al., 2004; DeAngelo, 1981). Therefore, auditor quality constrains earnings management.

According to Vander et al. (2003), audit quality has different impacts on listed and unlisted firms. They argue that auditor size causes differences and give two reasons why the auditor size causes these differences. First, audit failure is less likely to be detected for privately held firms because they are not subject to the scrutiny by market regulators and financial analysts. The second reason is that an audit firm's reputation would be less likely to be damaged severely for an audit failure of a privately held client than that of a publicly held firm. But it does not mean private firms do not need high quality auditing. Van Tendeloo and Van Straelen (2008) argue that private firms would also need high quality audits in order to deal with agency problems with capital providers, like banks and convey the signal of high quality on financial statements to related parties.

On the other hand, one could argue that according to their internationally recognized brand names, also Big 4 audit firms would be inclined to provide high auditing quality for private companies. Therefore, it is an empirical question whether Big 4 audit firms will guarantee the financial statements quality of private firms the same to that of public clients.

Prior studies on the effects of audit quality on earnings management of private firms are limited and the results are mixed. Vander et al. (2003) find that high audit quality is a constraint on earnings management only for private firms with income-decreasing manipulation and audit size has no effects on private firms with income-increasing manipulation in Belgium. The underlying rationale is that Big 4 auditors are less tolerant for income-decreasing management because of the fear of taxing authorities. On the other hand, Sercu et al. (2002) provide empirical evidence that Big 6 audit firms do not constrain earnings management of privately held firms than non-Big 6 audit firms statistically.

Van Tendeloo (2007) argues that the UK private firms audited by Big 4 audit firms report more income-decreasing management than firms audited by non-Big 4 auditors and these private firms show lower tax burdens relatively. Since the UK is a low tax alignment country, auditors have fewer incentives to provide high audit quality especially for privately held firms. Auditors in high tax alignment countries are

responsible for both financial reports and tax returns, while in low tax alignment countries audit firms are only responsible for the former one. Consequently, auditors get less pressure from tax authorities and have fewer incentives to provide high quality audits. Moreover, clients could get tax advisory services from audit firms, and Big 4 audit firms could provide more professional services than other auditors. Therefore, Big 4 audit firms may help their clients on tax planning which lead to tax-induced earnings management. Tax avoidance causes income-decreasing earnings manipulation. In this respect, Big 4 auditors' clients have higher income-decreasing earnings management if they are in low tax alignment countries. Although tax motivation could motivate both public and private firms to engage income-decreasing earnings management, this phenomenon is more severe in private firms, since private firms face less of a trade-off between tax minimization and economic performance as we discussed before. For this reason, private firms audited by Big 4 audit firms engage more income-decreasing earnings management in the UK. The empirical evidence in the UK also confirms this opinion. Moreover, Brenda Van Tendeloo (2007) also indentify that the UK firms engage more in income-decreasing earnings manipulation when they are audited by Big 4 audit firms.

Therefore, there is no conclusion that whether audit quality is a strong constrain on earnings management of private firms. We do not expect to find a stronger effect of IFRS reporting on firms audited by Big 4 audit firms than firms audited by non-Big 4 auditors. Our second hypothesis can be stated as follows:

Hypothesis 2: The effects of IFRS adoption on earnings management are not different between the UK private firms audited by Big 4 audit firms and non-Big 4 audit firms.

Firm size effects on earnings management are controversial. Beasley et al. (2000) and Lennox (1999) argue that firm size has positive impacts on earnings management because larger firms have more sophisticated internal control systems and higher reputation. However, Barton and Simko (2002), Nelson et al. (2002) and Rangan (1998) indicate the opposite view. They state that larger firms involve higher extents of earnings management, since larger firms undertake more pressure from the market and enjoy greater bargaining power with auditors. Moreover, Kim et al. (2003) find the evidence that large firms show more income-increasing earnings management than smaller firms. Burgstahler et al. (1997) exhibit there are higher frequencies of small increases in earnings management than frequencies of decreases.

We have no conclusion about the effects of firm size on earnings management. Hence,

our third null hypothesis is stated as follows:

Hypothesis 3: The effects of IFRS adoption on the earnings management of the UK private firms are not different between large and small firms.

3. Research Method

3.1 Sample

To test our hypothesis, we collect all the necessary data from Amadeus data-set of Bureau van Dijk containing financial information of private firms from 2003 to 2010 in the UK, since private firms of the UK could choose to adopt IFRS during this period. The database covers more than two million private firms. The sample includes firms reporting under UK GAAP and then switching to IFRS as well as firms continually reporting under UK GAAP, but we exclude firms which moved to IFRS then changed to UK GAAP again.

Following the previous studies, we exclude companies from financial institutions and public administrative institutions (Van Tendeloo and Vanstraelen, 2005; Vander et al., 2003). We use NACE Rev. 2 codes to identify specific industry category for companies. Since financial institutions have specific accounting requirements, and fundamental characteristics of public administrative institutions are substantially different from those of other firms, we exclude these two kinds of firms by NACE Rev. 2 codes. Financial institutions belong to the codes between 6400 and 6832. Public administrative institutions belong to the codes between 3500 and 3900. Besides, to increase the reliability of the results, missing values and firms with the 1% smallest and largest values of all necessary variables for analysis are excluded from the sample. This process yields a sample of 6,859 firms and 48,480 firm-year observations. Among the 6,859 firms, there are 520 IFRS adopters.

3.2 Earnings Management Measure

Earnings management is generally unobservable (Dechow and Skinner, 2000). Prior studies have developed different kinds of model to capture the manipulated earnings (Kothari et al., 2005; Peasnell et al., 2000). We use the most frequently used measure discretionary accruals to detect earnings management.

Accruals accounting measure firm performance through recognition of economic events, regardless of the time when real cash transactions occur. Total accruals (TA) consist of non-discretionary accruals (NDA) and discretionary accruals (DA). Discretionary accruals are defined as total accruals less expected normal accruals. Non-discretionary accruals are assumed to be expected normal accruals coming from operational activities, so the rest of the total accruals are discretionary accruals. Since non-discretionary accruals are more difficult to manipulate, we assume they are unable to manage. And discretionary accruals are regarded as indication of earnings management. Jones Model (Jones, 1991) assumes discretion is not exercised over revenue and property, plant and equipment. However, it is criticized that Jones Model is not powerful to capture the impact of sales-based manipulation. Therefore, Dechow (1995) modifies Jones Model and adds growth of credit sales in the original model. The Modified Jones Model is better at detecting earnings management and is widely used. We utilize this model to estimate discretionary accruals. To mitigate the effect of heteroskedasticity, we use robust option in Stata software, and all variables are scaled by lagged total assets (Kothari et al., 2005).

Firstly, we use the following expression to calculate total accruals ($TA_{i,t}$), in accordance with Callao (2010):

$$TA_{i,t} = \Delta REC_{i,t} + \Delta Inventories_{i,t} - \Delta Payables_{i,t} - DEP_{i,t} \quad (1)$$

Where $\Delta REC_{i,t}$ is the change in accounts receivables for firm i in year t compared to year t-1, $\Delta Inventories_{i,t}$ is the change in stocks for firm i in year t compared to year t-1, $\Delta Payables_{i,t}$ is the change in accounts payable for firm i in year t compared to year t-1, $DEP_{i,t}$ is the depreciation and amortization expenses for firm i in year t.

Then we obtain non-discretionary accruals following the linear regression:

$$TA_{i,t} / A_{i,t-1} = \alpha_1 [1/A_{i,t-1}] + \alpha_2 [\Delta REV_{i,t} / A_{i,t-1}] + \alpha_3 [PPE_{i,t} / A_{i,t-1}] + \varepsilon \quad (2)$$

Where: $TA_{i,t}$ is the total accruals for firm i in year t, $A_{i,t-1}$ is the total assets for firm i in year t-1, $\Delta REV_{i,t}$ is the change in revenue for firm i in year t compared to year t-1, PPE is the total property, plant and equipment, ε is the error term.

The original Modified Jones Model with time-series formulation has been criticized for considerable imprecision when implementing empirically. Firstly, time-series Modified Jones Model needs long time-series data for the estimation period to estimate the coefficients, say at least ten years. Secondly, the assumption that the

coefficient estimates on ΔREV and PPE remain stationary over time might not be appropriate (Peasnell et al., 2000). In an effort to overcome these problems, Subramanyam (1996) and Defond (1994) use cross-sectional versions of Modified Jones Model which is dominating the earnings management literature. Cross-sectional Modified Jones Model does not need long time data for estimating the coefficients and the model assumes that a company is compared to its industrial peers for each same period time.

Therefore, we estimate the equation (2) by cross-sectional approach. Under this approach, we estimate equation (2) separately for each industry-year combination. To ensure efficient estimation of the regression coefficients, each combination contains at least 10 observations. Industry is grouped by the first two-digit NACE Rev. 2 code.

After the industry- and time-specific parameters are gotten from equation (2), we combine them with firm-specific data to calculate estimated discretionary accruals, using the following formula:

$$NDA_{i,t} = a_1 [1/A_{i,t-1}] + a_2[(\Delta REV_{i,t} - \Delta REC_{i,t})/A_{i,t-1}] + a_3 [PPE_{i,t}/A_{i,t-1}] \quad (3)$$

Where $NDA_{i,t}$ is the non-discretionary accruals for the firm i in year t, a_1, a_2, a_3 equal to the regression coefficients α_1 ,α_2 ,α_3 from equation (2) respectively.

Lastly, we use the following formula to get absolute value of discretionary accruals:

$$DA_{i,t} = |TA_{i,t} - NDA_{i,t}| \quad (4)$$

Where DA i,t is the absolute value of discretionary accruals for the firm i in year t.

3.3 Model

To test the three hypotheses, we employ the following regression model:

$$DA_{i,t} = \beta_0 + \beta_1 * IFRS_{i,t} + \beta_2 * SIZE_{i,t} + \beta_3 * BIG4_{i,t} + \beta_4 * LEVERAGE_{i,t} + \beta_5 * CASHFLOW_{i,t} + \beta_6 * GROWTH_{i,t} + \beta_7 * ROA_{i,t} + \beta_8 * LOSS_{i,t-1} \quad (5)$$

$$DA_{i,t} = \beta_0 + \beta_1 * IFRS_{i,t} + \beta_2 * BIG4_{i,t} + \beta_3 * IFRS_{i,t} * BIG4_{i,t} + \beta_4 * SIZE_{i,t} + \beta_5 * LEVERAGE_{i,t} + \beta_6 * CASHFLOW_{i,t} + \beta_7 * GROWTH_{i,t} + \beta_8 * ROA_{i,t} + \beta_9 * LOSS_{i,t-1} \quad (6)$$

$$DA_{i,t} = \beta_0 + \beta_1 * IFRS_{i,t} + \beta_2 * SIZE_{i,t} + \beta_3 * IFRS_{i,t} * SIZE_{i,t} + \beta_4 * BIG4_{i,t} + \beta_5 * LEVERAGE_{i,t} + \beta_6 * CASHFLOW_{i,t} + \beta_7 * GROWTH_{i,t} + \beta_8 * ROA_{i,t} + \beta_9 * LOSS_{i,t-1} \quad (7)$$

Where $DA_{i,t}$ is the absolute value of discretionary accruals in year t for firm i, scaled by lagged total assets, IFRS is a dummy variable (IFRS=1, else=0), SIZE is a dummy variable (large=1, small=0), Big4 is a dummy variable (Big 4 auditor=1, else =0). LEVRAGE, CASHFLOW, GROWTH, ROA and LOSS are control variables. $LEVERAGE_{i,t}$ is total liability to total assets for firm i in year t, $GROWTH_{i,t}$ is percentage change in revenues in year t for firm i, $CASHFLOW_{i,t}$ is cash flow from operations for firm i in year t, $ROA_{i,t}$ is return on total assets in year t for firm i. $LOSS_{i,t-1}$ is a dummy variable, it equals 1 if a firm reported negative income before extraordinary items in year t-1 and 0 otherwise.

The dependent variable is earnings management measured by discretionary accruals. The independent variables are (1) whether the firm has adopted IFRS (IFRS), (2) whether the firm is a large firm (SIZE), (3) whether the firm is audited by BIG 4 audit firms (BIG4). To test whether the characteristics of firm (size and audit quality) impact the effects of IFRS on the magnitude of earnings management, the interaction variables 'IFRS*SIZE and IFRS*BIG4' are included in the model (6) and (7) respectively.

For the control variables, we choose LEVRAGE, GROWTH, CASHFLOW, ROA and LOSS in the regression model. First, leverage is a proxy for the tightness of debt covenant restraints (Duke and Hunt, 1990). The higher the leverage, the more stressful the debt covenant restrain for the firm is, thus the higher probability for the firm to violate the debt covenant. In the stressful financial situation, managers have more incentives to manipulate earnings. Callao (2010), Vander et al. (2003) and Jelinek (2007) provide evidence that higher leverage causes greater extents of earnings management. Then we control for cash flow from operations which is scaled by lagged assets.

Second, growth of revenues and ROA is included in the control variables to control for performance differences. Slinner and Sloan (2002) argue that growth companies involve more in earnings management. Since market have higher expectations for growing companies, managers in growth companies would be more stressful and consequently have higher incentives to report certain earnings to avoid big disappointment from stakeholders and market analysts. Previous studies find negative association between earnings management and ROA (Young, 1999; Dechow, 1995).

Third, LOSS is included in the control variables. Francia and Yu (2009) find that firms report a loss in the previous year are less likely to manipulate earnings than firms with positive profits. It is explained that firms with positive profits have more incentives to engage in earnings management to avoid disappointing stakeholders' expectations.

Finally, we include industry (IND) and year (YR) dummies to control for industry and year effects.

Given that effects of IFRS on earnings management differ in the direction of discretionary accruals (Teoh et al, 1998; Ashbaugh et al., 2003), we also use positive discretionary accruals and negative discretionary accruals as dependable variables in the regression models to examine the different effects of IFRS adoption on income-increasing and income-decreasing discretionary accruals.

4. Results

4.1 Descriptive Statistics

Table 1 shows descriptive statistics of all data used in this study from year 2003 to 2010. Results show that 1,747 (3.60%) firm-year observations of our sample (48,480) are reporting under IFRS and 46,733 (96.40%) firm-year observations are reporting under UK GAAP. For 6,859 firms, there are 520 firms (7.58%) switch to IFRS. Since it is not mandatory for private UK firms to adopt the new accounting standards, it is reasonable that the proportion of UK GAAP takers is larger. The results also report that 17,831 (36.78%) firm-year observations are audited by a BIG 4 audit firm while 30,649 (63.22%) firm-year observations are vice-versa. The interesting phenomenon is that of the IFRS adopters 1,355 (77.56%) firm-year observations are audited by a BIG 4 audit firm, while of the UK GAAP observations only 16,476 (35.26%) are audited by a BIG 4 audit firm.

Insert Table 1

Table 2 reports that the number of firm-year observations with positive discretionary accruals (25,681) is slightly more than that of negative discretionary accruals (22,799). The absolute mean value of positive discretionary accruals (0.3406) is slightly higher

than that of negative discretionary accruals (0.3059). Table 3 also presents the differences between mean value of variables for IFRS adoption firms and UK GAAP adoption ones. The results illustrate that IFRS adoption firms have higher mean values of assets and the difference is significant. Besides, IFRS adopters enjoy higher leverage (Leverage), ROA, cash flow from operations (Cash Flow) and are growing faster (Growth) at 1% significant level.

Insert Table 2

Insert Table 3

4.2 Univariate Test

Table 4 reports that results of t-tests for the mean value difference of discretionary accruals between IFRS adopters and UK GAAP adopters. The results illustrate firms reporting under IFRS engage in higher level of earnings management. And the differences are significant both for income-increasing manipulation and income-decreasing manipulation at 1% significant level. Specifically, positive discretionary accruals of firms under IFRS are 0.9376 higher than that of UK GAAP 0.3213; the absolute value of negative discretionary accruals for firms under IFRS is 0.8037 higher than that of UK GAAP 0.3063.

Insert Table 4

4.3 Correlations

Table 5 reports that Pearson correlation coefficients of the variables. The results show significant relation between absolute discretionary accruals and IFRS adopters with Pearson correlation value of 0.1625. Considering the direction of discretionary accruals, income-increasing earnings management and income-decreasing earnings management are both correlated with IFRS adoption significantly. Since the value of negative discretionary accruals are negative (-0.1509), the negative correlation value means that IFRS adoption is positively associated with absolute value of negative discretionary accruals. And the results show that size and high audit quality are positively associated with discretionary accruals for both directions. Moreover, IFRS adopters have positive relations with large firm, high quality auditing and greater sales growth.

Insert Table 5

4.4 Regression Results

To test the hypotheses, three regressions are operated separately. Given that the impact of IFRS adoption differs in the direction of discretionary accruals (Deegan and Unerman, 2006), we partition the sample and conduct the regressions for these three dependable variables which are absolute discretionary accruals, negative discretionary accruals and positive discretionary accruals. The results are reported in Table 6.

Panel A reports the regression results depending on absolute discretionary accruals. The model explains 31.9% of dependable variable indicated by R^2. IFRS adoption is associated with absolute discretionary accruals (significant at 5% level). This result supports the first hypothesis that IFRS adoption does not reduce the level of earnings management, on the contrary it even intensifies earnings management, in consistent with previous studies (Callao, 2010; Guenther et al., 2009). Besides, firms with large size and high audit quality lead to greater earnings manipulation, since the coefficients of Size and Big4 are significantly positive at 1% level.

In order to test whether the effects of IFRS adoption on earnings management are influenced by audit quality, we include an interaction variable IFRS*BIG4 in Model 2. The coefficient is not significant at 5% level. Therefore, although audit quality affects absolute discretionary accruals, it does not affect the reported magnitudes of earnings management when firms adopt IFRS (after including the interaction variable IFRS*BIG4). The result supports the second hypothesis that the impacts of IFRS adoption on earnings management are not different between firms audited by Big 4 audit firms and non-Big 4 audit firms.

For the third hypothesis, the interaction variable IFRS*Size is included in Model 3. The coefficient of this interaction variable is also not significant at 5% level, which supports the third hypothesis that effects of IFRS adoption on earnings management are not different between large and small firms.

As for the control variables, the results show that leverage, sales growth, cash flow from operations and loss are all positively associated with absolute discretionary accruals (significant at 1% level), while return on assets (ROA) is negatively associated with manipulated earnings (significant at 1% level). The results are largely in line with expectations. More specifically, higher leverage and greater sales growth lead to higher level of earnings management as expected. Firms with higher leverage have more incentives to manipulate due to the tightness of debt covenant restraints

(Duke and Hunt, 1990). Cash flow from operation is positively related to absolute discretionary accruals. Firms with higher ROA have lower level of earnings management. Lastly, controlling for firms reporting a loss in the previous year, we find that the sign of loss is positively associated with earnings management, in consistent with Medhat et al. (2010).

Insert Table 6

Panel B and C report regression results of income-decreasing and income-increasing manipulated earnings. We make negative discretionary accruals into absolute values for better comparison. The results indicate that IFRS adopters with negative discretionary accruals or positive discretionary accruals do not exhibit more or less earnings management. The results do not support the first 1b hypothesis that IFRS have different impacts on firms with income-increasing and income-decreasing earnings management. But it still shows that IFRS reporting is not sufficient to reduce the level of earnings management and improve accounting quality. Since IFRS provide more room for accounting decisions, it would deteriorate the positive effects of IFRS.

As for the effects of IFRS adoption on earnings management, considering of the audit quality, the results are different for these two opposite manipulation. The coefficient of IFRS*BIG4 variable of income-decreasing manipulation is positive (at 10% significant level), while coefficients for income-increasing manipulation is not significant. The result implies that IFRS adopters with negative discretionary accruals audited by high quality audit firms involve in higher level of earnings management. On the other hand, firms with positive discretionary accruals audited by BIG 4 audit firms do not present more or less earnings management. This result is in consistent with the study of Van Tendeloo (2007) who argues that private firms in the UK audited by Big 4 audit firms report more income-decreasing management than income-increasing ones, for tax-deduction motivations as explained in Section 2. The UK is a low tax alignment country in which auditors gets less pressure from tax authorities. So auditors in the UK could tolerate more tax-induction (income-decreasing) earnings management than that of high tax alignment country. Besides, private firms face less of a trade-off between tax minimization and economic performance than public firms, so they have more incentives to manipulate earnings downwards for tax-induction purpose. What's more, Big 4 auditors can provide more professional tax avoidance service than non-big 4 auditors. Therefore, these three reasons could be an explanation for this regression result.

The influence of size on earnings management is also different for these two opposite manipulation. The coefficient of IFRS*Size variable of income-increasing manipulation is positive at 1% significant level, while coefficient for income-decreasing manipulation is not significant, which is in line with Kim et al. (2003). The results imply that IFRS adopters with positive discretionary accruals manipulate earnings management to a higher level with larger firm size. For firms with income-decreasing earnings management, firm size does not influence discretionary accruals. Income-increasing earnings management means firm performance is below the target for these firms. As Barton and Simko (2002), Nelson et al. (2002) and Rangan (1998) argue, large firms undertake more pressure from the market and therefore involve in higher extent of earnings management. Besides, Kim et al. (2003) point out that large firms exhibit more income-increasing earnings management than smaller firms to meet higher expectations from the market.

It is concluded from these regression results that IFRS reporting intensifies the extent of earnings management of private firms in the UK. These results confirm that principle-based IFRS leave more room for earnings management than their rule-based accounting standards GAAP. It is in accordance with Heemskerk et al. (2006) that although the new standards are very stringent, the implementation of IFRS comes with managers' more subjective and freedom judgments, and therefore the quality of financial reports might not be improved as expected. This might be an explanation why IFRS intensifies the extent of earnings management on firms with absolute discretionary accruals.

As we have mentioned in Section 2, effects of IFRS adoption on earnings management are divergent for public firms. Barth et al. (2008) examine 21 countries around the world and find IFRS adoption reduce the level of earnings management for public firms, in accordance with the finding of Cai et al. (2008), Aussenegg et al. (2008) and Christensen et al. (2008). On the other hand, Callao (2011) argues IFRS adoption of public firms intensifies earnings management, in accordance with Paola Paglietti (2009). All these studies focus on countries across Europe, while there are also many literatures focusing on UK public firms. Jeanjean, T. and Stolowy, H. (2008) argue the extent of IFRS on earnings management does not decline under the new accounting standards. Alexandra Tudor (2010) finds that earnings management tends to a higher degree in the UK after IFRS adoption. The findings in the UK public firms are consistent with our results that IFRS adoption would not reduce the extent of earnings management.

Regarding the audit quality and firm size effect on earnings management, the whole

sample does not show that audit quality and firm size affect earnings management after IFRS adoption. However, IFRS adopters with income-decreasing discretionary accruals show that higher audit quality is associated with higher level of earnings management; while for IFRS adopters with income-increasing discretionary accruals, their audit quality does not show significant relationship with earnings manipulation. The results indicate that firm characteristics are related to accounting policies to some extent. As for the audit quality, higher audit quality does not work as a constraint on the extent of earnings management in IFRS adopters. It even intensifies earnings manipulation for IFRS adopters with negative discretionary accruals. Moreover, larger firm size decreases the utilization of IFRS for income-increasing adopters.

Firm characteristics of public firms show different influence on the extent of earnings management after IFRS adoption. Medhat and Kevin (2010) indentify that public IFRS-adopters show lower level of earnings management when they are audited by Big 4 audit firms. They provide evidence that audit quality work as a constraint on earnings manipulation in IFRS adoption. This is different from our result. It could be explained that audit firms provide higher audit quality for public firms, since audit firms would face more losses when an audit failure occurs (Vander et al., 2003; DeAngelo, 1981). As for public firms' size effect, Callao (2010) argues larger size is positively associated with the level of earnings management, which is in consistent with our results that larger size decreases the utilization of IFRS for income-increasing adopters.

4.5 Robustness checks

We conduct two robustness checks as follows. Firstly, the discretionary accruals are also measured with original Jones Model (Jones, 1991). The only adjustment to the Jones Model is the change in revenues that change in receivables in the event period is considered (Dechow, 1995). The modified version of the Jones Model makes an assumption that earnings management is also from the change in credit sales in the event period. The results of this regression based on original Jones Model are reported in Table 7 and are quite similar to the findings of the Modified Jones Model. Panel A of Table 7 reports the regression results of absolute discretionary accruals and these models have explanation power of 32%. The results illustrate that IFRS adoption does not reduce earnings management, but it would intensify the manipulation for the whole sample, in consistent with the results under Modified Jones Model.

The effects of IFRS on different directions of earnings management are shown in

Panel B and Panel C of Table 7. The results are also in consistent with that of the Modified Jones Model. More specifically, IFRS adoption does not affect the level of earnings management for both two direction manipulations. In addition, firms with negative discretionary accruals would manipulate higher level of earnings management if they are audited by BIG 4 audit firms. For IFRS adopters with positive discretionary accruals, larger firm size intensifies the extent of earnings management, aligning with the results of Modified Jones Model.

Insert Table 7

Secondly, we measure discretionary accruals under time-series approach with Modified Jones Model. As mentioned in Section 3, time-serial formulation for Modified Jones Model is criticized for practical issues, with lack of enough firm-year observations for estimation period and the assumption that coefficients estimated for ΔREV and PPE remain stationary over time (Peasnell et al., 2000). To check the robustness of our results, we use the sample from 1998 to 2004 as estimation period to get the coefficients for ΔREV and PPE. Then we apply the coefficients to the event period from year 2005 to 2010.

The regression result under the time-serial Modified Jones Model is presented in Table 8. Under time-serial approach, the explanation power of the model is 21.2% which is lower than that of cross-sectional approaches. The results illustrate that IFRS adoption has no effect on earnings management, since the coefficient is not significant. It is also consistent with the first hypothesis that IFRS adoption does not reduce the level of earnings management. Moreover, audit quality and size have no significant relationship with earnings management after firms adopt IFRS neither, which support the second and third hypothesis. However, it is worth mentioning that due to the limit of time period for the estimation period, the results might be biased and doubtful.

Insert Table 8

5. Conclusion

The main objective of this study is to examine the impact of adopting International Financial Reporting Standards (IFRS) on earnings management empirically by using a sample of private firms in the UK. Discretionary accruals based on Modified Jones Model are used to measure earnings management. To examine the effects on different directions of earnings management, the sample is separated into observations with

negative discretionary accruals and observations with positive discretionary accruals. The other two objectives are to investigate whether audit quality and firm size affect the level of earnings management for IFRS adopters.

The results obtained show that IFRS adoption does not reduce the level of earnings management; on the contrary earnings manipulation is intensified after the adoption of new accounting standards for private firms in the UK. However, considering of the directions of earnings manipulation, the results show that effects of IFRS adoption on earnings management are not significant for income-increasing or income-decreasing adopters separately. Moreover, the evidence reinforces the idea that higher audit quality does not work as a constraint on earnings manipulation. On the contrary, it increases the level of earnings management for IFRS adopters with income-decreasing earnings management. It is consistent with previous literature (Van Tendeloo, 2007) that higher audit quality does not enable a better utilization of IFRS compared with UK GAAP. Last but not least, larger firm size intensifies earnings management for IFRS adopters with income-increasing accruals.

The robustness test shows that with original Jones Model, the similar conclusions can be obtained. The results support that IFRS reporting increases the level of earnings management. The effect of audit quality and firm size for a firm is aligning with that of Modified Jones Model. Moreover, under the time-serial approach, IFRS adoption does not have influence on earnings management. Audit quality and size do not affect IFRS adopters' manipulation, neither.

This paper contributes to the existing literature by exploring the effects of IFRS adoption on earnings management for non-listed companies, since most of the relevant studies only focused on public firms. Furthermore, the effects of audit quality and size on earnings managers of unlisted IFRS adopters are also examined.

Some limitations may be considered in interpreting the results. First, as IFRS is mandatory for listed firms in the UK merely from the year 2005, the time duration is not long enough to conduct unbiased analysis. So it is suggested to take longer time duration for further research as such. Second, the discretionary accruals are only measured by Modified Jones Models. Even though this model has been frequently used on detecting earnings management, its effectiveness is still controversial. Third, as the descriptive statistics show, only 520 (7.58%) firms are reported under IFRS, the results might be biased due to the small proportion of firms adopting the new accounting standards.

The current work could be extended by future research. First, it is possible to examine the IFRS effects in other European countries. Second, it might be interesting to compare effects under different measurements. By using different approaches to detect earnings management, the results could be more thorough and reliable.

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Appendix

Table 1: Classification by Accounting Standards Followed and Auditor Size

Accounting standards followed	Auditors					
	Non-BIG 4		BIG 4		Total	
UK GAAP	30,257	64.74%	16,476	35.26%	46,733	96.40%
IFRS	392	22.44%	1,355	77.56%	1,747	3.60%
Total	30,649	63.22%	17,831	36.78%	48,480	100%

Table 2 Descriptive statistics

Variable	N	Mean	SD	Min	Med	Max
ABSDA	48,480	0.3240	0.5700	0.000000181	0.1300	3.1220
DA $\geq$ 0	25,681	0.3406	0.6050	0.000000181	0.1407	3.1220
DA $<$ 0	22,799	-0.3059	0.5282	-2.4827	-0.1198	-0.00000534
Assets	48,480	8.8010	2.0250	0.0000	9.2180	10.9000
Leverage	48,480	0.4400	1.5980	0.0000	0.0198	11.0600
Cash Flow	48,480	0.2860	0.6910	-1.2590	0.1100	4.6080
Growth	48,480	0.0467	0.3760	-0.8920	0.0132	3.8180
ROA	48,480	0.1730	0.5040	-1.1020	0.0616	3.4000
Loss	48,480	0.1690	0.3750	0.0000	0.0000	1.0000

Table 3 Difference between mean value of IFRS and UK GAAP adopters

	UK GAAP	IFRS	Differences in means	t-statistics
Variable	Mean	Mean		
Assets	8.7315	10.6583	-1.9268	-39.67***
Leverage	0.3588	2.6193	-2.2605	-60.16***
Cash Flow	0.2541	1.1374	-0.8833	-53.98***
Growth	0.0459	0.0686	-0.0226	-2.47***
ROA	0.1547	0.6584	-0.5038	-41.71***
LOSS	0.1670	0.2204	-0.0534	-5.84***

*** P<0.01, **P<0.05, *P<0.1

Table 4 Univariate test

	UK GAAP	IFRS	Differences in means	t-statistics
Variable	Mean	Mean		
ABSDA	0.3063	0.8037	-0.4973	-36.26***
DA ≥ 0	0.3213	0.9376	-0.6163	-28.88***
DA < 0	-0.2894	-0.6895	0.4002	23.04***

*** P<0.01, **P<0.05, *P<0.1

Table 5 Pearson Correlation Matrix

Panel A Absolute Discretionary Accruals

	ABSDA	IFRS	Size	BIG 4	LEV	Growth	CFO	ROA	LOSS
ABSDA	1								
IFRS	0.1625***	1							
Size	0.2003***	0.1773***	1						
BIG 4	0.2527***	0.1635***	0.5410***	1					
LEV	0.4620***	0.2636***	0.2035***	0.2226***	1				
Growth	0.0480***	0.0112**	0.0238***	0.00140	0.0175***	1			
CFO	0.4614***	0.2381***	0.0198***	0.1792***	0.5336***	0.0883***	1		
ROA	0.3533***	0.1862***	-0.0561***	0.1176***	0.3976***	0.0658***	0.8926***		
LOSS	0.0366***	0.0266***	0.0892***	0.0948***	0.0479***	0.0359***	-0.1163***	-0.1724***	1

*** P<0.01, **P<0.05, *P<0.1

Panel B Negative Discretionary Accruals

	DA	IFRS	Size	BIG 4	LEV	Growth	cfo	ROA	LOSS
DA	1								
IFRS	-0.1509***	1							
Size	-0.2104***	0.1839***	1						
BIG 4	-0.2542***	0.1536***	0.5621***	1					
LEV	-0.4056***	0.2718***	0.1958***	0.2154***	1				
Growth	-0.0560***	0.0108*	0.0345***	0.0203***	0.0251***	1			
CFO	-0.4286***	0.2347***	0.0407***	0.1723***	0.5288***	0.0892***	1		
ROA	-0.2918***	0.1581***	-0.0547***	0.0966***	0.3625***	0.0704***	0.8687***	1	
LOSS	-0.0350***	0.0384***	0.0982***	0.1042***	0.0462***	0.0499***	-0.1302***	-0.1992***	1

*** P<0.01, **P<0.05, *P<0.1

Panel C Positive Discretionary Accruals

	DA	IFRS	Size	BIG 4	LEV	Growth	cfo	ROA	LOSS
DA	1								
IFRS	0.1774***	1							
Size	0.1937***	0.1710***	1						
BIG 4	0.2576***	0.1717***	0.5227***	1					
LEV	0.5076***	0.2568***	0.2105***	0.2302***	1				
Growth	0.0400***	0.0138**	0.0144*	-0.0115**	0.0107	1			
CFO	0.4907***	0.2428***	0.0002	0.1868***	0.5382***	0.0872***	1		
ROA	0.4022***	0.2173***	-0.0572***	0.1407***	0.4292***	0.0599***	0.9152***	1	
LOSS	0.0401***	0.0120**	0.0803***	0.0821***	0.0497***	0.0253***	-0.1027***	-0.1457***	1

*** P<0.01, **P<0.05, *P<0.1

Table 6 Regression analysis for discretionary accruals

Panel A Absolute value of discretionary accruals

	Model1	Model2	Model3
IFRS	**0.043****	0.0110	-0.126
	(2.18)	(0.47)	(-1.21)
Size	0.077***	0.078***	0.077***
	(12.35)	(12.47)	(12.17)
BIG 4	0.144***	0.143***	0.145***
	(16.21)	(15.86)	(16.21)
Leverage	0.085***	0.085***	0.085***
	(17.11)	(17.06)	(17.09)
Growth	0.037***	0.037***	0.037***
	(5.01)	(5.01)	(5.02)
CFO	0.268***	0.268***	0.268***
	(13.61)	(13.59)	(13.60)
ROA	-0.127***	-0.127***	-0.127***
	(-5.42)	(-5.42)	(-5.42)
Loss	0.030***	0.030***	0.030***
	(4.66)	(4.68)	(4.66)
IFRS*BIG4		**0.0430**	
		(1.29)	
IFRS*Size			**0.174**
			(1.64)
cons	0.104***	0.105***	0.105***
	(3.40)	(3.41)	(3.42)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Observations	48480	48480	48480
R-squared	0.319	0.319	0.319

*** P<0.01, **P<0.05, *P<0.1

Robust t-statistics in parentheses

Panel B Negative discretionary accruals

	Model4	Model5	Model6
IFRS	**0.0330**	-0.0170	-0.169
	(1.52)	(-0.74)	(-1.23)
Size	0.079***	0.080***	0.078***
	(10.20)	(10.33)	(10.04)
BIG 4	0.144***	0.142***	0.145***
	(14.75)	(14.24)	(14.75)
Leverage	0.059***	0.059***	0.059***
	(10.53)	(10.46)	(10.60)
Growth	0.043***	0.043***	0.043***
	(4.02)	(4.03)	(4.02)
CFO	0.291***	0.290***	0.291***
	(13.85)	(13.79)	(13.84)
ROA	-0.189***	-0.189***	-0.189***
	(-7.42)	(-7.42)	(-7.42)
Loss	0.022**	0.022**	0.022**
	(2.52)	(2.55)	(2.52)
IFRS*BIG4		**0.068***	
		(1.89)	
IFRS*Size			**0.209**
			(1.50)
cons	0.066*	0.067**	0.067**
	(1.94)	(1.97)	(1.97)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Observations	22799	22799	22799
R-squared	0.296	0.296	0.296

*** P<0.01, **P<0.05, *P<0.1

Robust t-statistics in parentheses; **negative discretionary accruals are in absolute value**

Panel C Positive discretionary accruals

	Model7	Model8	Model9
IFRS	**0.0460**	0.0430	-0.093**
	(1.42)	(0.90)	(-2.24)
Size	0.080***	0.080***	0.079***
	(10.89)	(11.00)	(10.81)
BIG 4	0.134***	0.134***	0.135***
	(13.02)	(12.92)	(13.04)
Leverage	0.108***	0.108***	0.108***
	(16.98)	(16.98)	(16.96)
Growth	0.035***	0.035***	0.036***
	(3.32)	(3.32)	(3.33)
CFO	0.303***	0.303***	0.303***
	(9.21)	(9.20)	(9.21)
ROA	-0.104***	-0.104***	-0.104***
	(-2.62)	(-2.62)	(-2.63)
Loss	0.050***	0.051***	0.050***
	(5.44)	(5.45)	(5.44)
IFRS*BIG4		**0.0040**	
		(0.07)	
IFRS*Size			**0.143*** **
			(2.71)
cons	0.168***	0.168***	0.168***
	(4.87)	(4.88)	(4.89)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Observations	25681	25681	25681
R-squared	0.364	0.364	0.364

*** P<0.01, **P<0.05, *P<0.1

Robust t-statistics in parentheses

Table 7 Robustness check: Regression analysis under original Jones Model

Panel A Absolute value of discretionary accruals

	Model1	Model2	Model3
IFRS	**0.042****	0.0100	-0.125
	(2.13)	(0.46)	(-1.21)
Size	0.077***	0.078***	0.076***
	(12.25)	(12.36)	(12.07)
BIG 4	0.144***	0.142***	0.144***
	(16.10)	(15.76)	(16.11)
Leverage	0.084***	0.084***	0.084***
	(16.91)	(16.86)	(16.89)
Growth	0.038***	0.038***	0.038***
	(5.04)	(5.04)	(5.05)
CFO	0.270***	0.270***	0.270***
	(13.74)	(13.71)	(13.73)
ROA	-0.127***	-0.127***	-0.127***
	(-5.45)	(-5.46)	(-5.46)
Loss	0.030***	0.030***	0.030***
	(4.64)	(4.66)	(4.64)
IFRS*BIG4		**0.0410**	
		(1.25)	
IFRS*Size			**0.172**
			(1.63)
cons	0.108***	0.108***	0.109***
	(3.54)	(3.55)	(3.55)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Observations	48480	48480	48480
R-squared	0.320	0.320	0.320

*** P<0.01, **P<0.05, *P<0.1

Robust t-statistics in parentheses

Panel B Negative discretionary accruals

	Model4	Model5	Model6
IFRS	**0.032**	-0.0170	-0.162*
	(1.59)	(-0.75)	(-1.80)
Size	0.079***	0.080***	0.078***
	(8.27)	(10.31)	(8.17)
BIG 4	0.144***	0.141***	0.144***
	(14.45)	(14.16)	(14.47)
Leverage	0.058***	0.057***	0.058***
	(21.18)	(10.08)	(21.18)
Growth	0.042***	0.042***	0.042***
	(5.66)	(3.88)	(5.66)
CFO	0.288***	0.288***	0.288***
	(28.71)	(13.59)	(28.66)
ROA	-0.183***	-0.182***	-0.183***
	(-15.03)	(-7.13)	(-15.03)
Loss	0.021***	0.021**	0.021***
	(2.68)	(2.47)	(2.68)
IFRS*BIG4		**0.067***	
		(1.87)	
IFRS*Size			**0.201**
			(1.20)
cons	0.071*	0.072**	0.072*
	(1.73)	(2.18)	(1.75)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Observations	22790	22790	22790
R-squared	0.297	0.297	0.297

*** P<0.01, **P<0.05, *P<0.1

Robust t-statistics in parentheses; **negative discretionary accruals are in absolute value**

Panel C Positive discretionary accruals

	Model7	Model8	Model9
IFRS	**0.0480**	0.0460	-0.0970
	(1.46)	(0.95)	(-0.79)
Size	0.078***	0.078***	0.077***
	(10.62)	(10.72)	(8.02)
BIG 4	0.136***	0.135***	0.136***
	(13.07)	(12.98)	(13.27)
Leverage	0.108***	0.108***	0.108***
	(17.15)	(17.16)	(38.44)
Growth	0.036***	0.036***	0.037***
	(3.39)	(3.39)	(4.78)
CFO	0.311***	0.311***	0.311***
	(9.48)	(9.48)	(25.07)
ROA	-0.113***	-0.113***	-0.113***
	(-2.87)	(-2.87)	(-7.29)
Loss	0.049***	0.049***	0.049***
	(5.28)	(5.29)	(5.88)
IFRS*BIG4		**0.0030**	
		(0.05)	
IFRS*Size			**0.148****
			(2.20)
cons	0.175***	0.175***	0.175***
	(4.99)	(4.99)	(4.09)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Observations	25690	25690	25690
R-squared	0.364	0.364	0.364

*** P<0.01, **P<0.05, *P<0.1

Robust t-statistics in parentheses

Table 8 Robustness check: Regression analysis under time-serial approach for absolute discretionary accruals

	Model1	Model2	Model3
IFRS	**0.0730**	-0.0190	-0.0490
	(0.83)	(-0.11)	(-0.13)
Size	0.0900	0.0930	0.0890
	(0.75)	(0.78)	(0.75)
BIG 4	0.901***	0.893***	0.901***
	(7.29)	(7.20)	(7.29)
Leverage	0.360***	0.360***	0.360***
	(23.13)	(23.08)	(23.13)
Growth	0.0250	0.0250	0.0250
	(0.70)	(0.70)	(0.70)
CFO	0.984***	0.983***	0.984***
	(16.25)	(16.22)	(16.25)
ROA	-0.509***	-0.508***	-0.509***
	(-7.61)	(-7.60)	(-7.61)
Loss	0.0400	0.0410	0.0400
	(1.22)	(1.23)	(1.22)
IFRS*BIG4		**0.128**	
		(0.66)	
IFRS*Size			**0.129**
			(0.33)
cons	0.469	0.472	0.469
	(0.89)	(0.90)	(0.89)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Observations	19677	19677	19677
R-squared	0.212	0.212	0.212

*** P<0.01, **P<0.05, *P<0.1

Robust t-statistics in parentheses