IFRS Adoption for Private Firms in the UK: Firm Specific Factors

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# Contents

1. Introduction .................................................................................................................. 2

2. Literature Review ......................................................................................................... 5
   - Financial Reporting and Disclosure Environment in United Kingdom for Private Firms ............ 5
     - Regulatory Demand an Overview ............................................................................ 5
     - IFRS vs. UK GAAP ................................................................................................. 6
   - Prior Research .......................................................................................................... 7
     - Potential Costs and Benefits of IFRS Adoption ....................................................... 11

3. Sample Data Methodology ........................................................................................... 13
   - Methodology .......................................................................................................... 16
     - Model to Be Tested ............................................................................................... 17
     - Limitations of the Model ....................................................................................... 19
   - Determinants of IFRS Adoption and Independent Variable Hypotheses: ..................... 19

4. Empirical Results ........................................................................................................ 22
   - Univariate Statistics ............................................................................................... 22
     - Logistic Regression and Marginal Effects Interpretation ........................................ 29

5. Summary and Conclusion ........................................................................................... 37

6. Appendix A .................................................................................................................. 40
1. Introduction

The growing influence of IFRS in the international setting has even prompted many private firms to adopt the IFRS standards recently. Private firms are not legally obliged to make financial reports under IFRS as public firms in the UK are. The purpose of this study is to understand the firm-specific characteristics that may be potential determinants and or consequences of IFRS adoption by private firms in the UK. Thus, this paper examines the voluntary adoption decision of International Financial Reporting Standards by private firms in the United Kingdom in preparing their financial statements. We look at firm characteristics that are possible determinants and or consequences of private firms’ adoption of IFRS reporting mechanism in the context of private firms in the UK.

The other alternative to using IFRS for private firms in the UK is to prepare their financial statements based on UK Generally Accepted Accounting Principles (UK GAAP). The vast majority of private firms prepare their financial statements based on UK GAAP, however there is a certain proportion of firms that have adopted the IFRS. Past research based on public firms has shown that the use of IAS enhances the quality of financial reporting and limits managerial discretion (IAS was the old set of International accounting standards set by the IASC and were published until 2001 while IFRS were published from 2001 onwards and are issued by the IASB which succeeded the IASC) (Ashbaugh et al 2001).

The main aim of this research is to investigate the underlying factors which may be attributable to firms using IFRS for preparing their financial statements rather than UK GAAP for private firms in the United Kingdom. When it comes to identifying the firm-specific factors for IFRS adopter firms, this study does not distinguish those factors between determinants or consequences of IFRS adoption. The reason for not distinguishing between whether an identified firm-factor is a determinant or a consequence of IFRS adoption is that this paper does not differentiate those factors as pre-adoption or post-adoption, whereby pre-adoption factors may be acknowledged as determinants and post-adoption factors as consequences of IFRS adoption. This study is limited in scope to identifying firm-specific factors which may be attributable to IFRS adopter firms.
Other papers, such as the paper by Francis et al (Francis et al 2008), look at the same issue in the context of various countries and analyze the impact of country based factors on the firms’ voluntary adoption decision. The paper by Francis et al (Francis et al 2008) suggests that firm factors play a greater role than country factors in developed countries. Although my research is limited to private firms in the United Kingdom, which is a developed country, we can take confidence from the Francis et al paper (Francis et al 2008) to seek to address the question of firm factors on the voluntary adoption decision by firms in the UK.

Although private firms in the UK are not required by law to prepare financial statements using IFRS, previous research suggests that there are benefits to be gained from the use of IFRS as opposed to a local GAAP or in this case the UK GAAP. The positive accounting theory (Watts and Zimmerman 1990) tells us that there exists a relationship between a firms’ accounting choice and other firm variables, although Watts et al (Watts et al 1990) do not speak specifically about IFRS they make it clear that accounting choice is determined by certain firm level factors.

A more recent paper by Andre et al (Andre et al 2012) specifically looks at the questions we are trying to address about the very relation between a firms’ choice of accounting standards it used to prepare its financial statements and the firm characteristics which influence that decision. Andre et al (2012) looks at the determinants of private firms in the UK and their decision to voluntarily adopt IFRS.

The benefits of IFRS adoption have been discussed in length in previous papers however even they seem to indicate conflicting results. Certain studies suggest that there is evidence of benefits arising from IFRS adoption in the form of improvement in comparability of financial statements, increased understanding by the end users of financial statements and lower cost of capital (Wu and Zhang 2010, Barth et al 2011, Daske et al 2012). Other studies seem to back the other side of the coin in playing down the impact of IFRS adoption on comparability and the effect and benefits it may lead to (Lang et al 2010, Christensen 2012).

Christensen (2012) in his paper has suggested that the impact of IFRS adoption is perhaps overstated in many contexts based on several reasons. Christensen (2012) reasons that that the small percentage of IFRS adopters could imply either that practitioners of accounting standards
are irrational or that the benefits of IFRS adoption are incorrectly estimated by academics. This view undermines the benefits to be gained from IFRS adoption by the firms.

With regard to the issue of choice of accounting standards, we observe this choice for private firms in the context of the United Kingdom there is a binary choice either between the local UK GAAP and the IFRS. Therefore the private firms in the UK may choose to prepare their financial statements in either UK GAAP or IFRS. Given that this binary choice exists for private firms in the UK, the aim of this study is to understand the causes and incentives for firms to make the adoption choice for IFRS based financial reporting and its consequences.

Since firms that apply voluntary adoption of IFRS do so out of their own volition in the context of private firms in the UK, it is reasonable to assume that IFRS is the preferred reporting strategy of that firm (Drake et al 2010). Therefore this paper is an examination of a question addressed by a set of previous studies. However the novelty of my study is partly due to the dataset that is examined. This study specifically examines private firms in the UK whereas previous studies that are similar such as the study by Andre et al (2010) is based on unlisted firms in the UK.

For this paper we use several studies as benchmarks to make a meaningful assessment of the determinants and consequences of IFRS adoption for private firms in the UK. Furthermore the results we obtain from this research can be used as a yardstick to measure the impact and determinants for IFRS adoption among private firms in different developed countries.

The findings of this paper reaffirm some of the outcomes known from previous literature as well as shedding light on newer outcomes. Our findings suggest that firms which are large, less internationally oriented, are more capital intensive and pay more to their auditors are more likely to be IFRS adopters. One point to be noted here is that we do not distinguish which of these effects that we find common among IFRS adopters is a consequence or a determinant of IFRS adoption. The aim of this study was to identify characteristics of IFRS adopter firms, which may be characteristics arising in post adoption and would thus be consequences of IFRS adoption or could be determinants of IFRS adoption for firms and had been present in pre adoption time.
Some notable exception to the outcomes of this study were the results found pertaining to profitability, international orientation, and capital intensity. Previous works such as the Andre et al (2012) identifies profitability as not affecting the firm adoption decision. In general the model that our study aims to pursue reveals some interesting outcomes about IFRS adopting firm, which we discuss in further detail in later sections of the paper.

This study finds that private firms which are large in total asset size, less internationally oriented, have lesser profitability, have greater capital intensity and pay more in remuneration to their auditors are more likely to be IFRS adopter firms.

2. Literature Review

Financial Reporting and Disclosure Environment in United Kingdom for Private Firms

Regulatory Demand an Overview

When it comes to legal requirements for financial reporting for private firms in the United Kingdom firms have a choice of the standards they may use for preparing their annual accounts for tax purposes. The accepted accounting standards for legal and tax purposes that are deemed by UK regulatory authorities are either the International Financial Reporting Standards or the UK Generally Accepted Accounting Practice. Statutory requirements in the UK dictate that private limited firms file copies of their financial reports at the end of company’s financial year to 1) all shareholders, 2) people who can go to the company’s general meetings, 3) HM Revenue & Customs (GOV.UK.) as part of the Company Tax Return and 4) Companies House.

The basic format for putting together a company’s statutory accounts for legal and tax purposes includes having the following as part of the accounts: 1) a ‘balance sheet’, which shows the value of everything the company owns and is owed on the last day of the financial year, 2) a ‘profit and loss account’, which shows the company’s sales, running costs and the profit or loss it has made over the financial year, 3) notes about the accounts, 4) a director’s report and 5) an auditor’s report. However companies qualifying as Small Firms under regulatory conditions may be exempt from audits.
Although there is no regulatory requirement on the mechanism for financial reporting of private limited firms in the UK, the UK authorities give such firms a choice between using either IFRS or UK GAAP. This choice makes an interesting economic question to ponder and analyze. Therefore the goal of this study is, in the context of the choice allowed to firms by regulation between IFRS and UK GAAP, to understand the determinants and consequences of private firms' adoption of IFRS reporting mechanism.

**IFRS vs. UK GAAP**

The International Financial Reporting Standards and the UK Generally Accepted Accounting Principles offer firms a choice for their financial reporting mechanism. The differences between the two set of accounting standards may affect different firms differently depending on the nature and circumstances of each firm. For instance one such significant difference between IFRS and UK GAAP is that when recording inventory with deferred payment terms, IFRS prescribes a financing element to the transaction and dictates that an interest expense be recognized whereas the UK GAAP does not specify any guidance on the issue\(^1\). Therefore firms that frequently encounter deferred payments of the nature discussed may have significant differences in financial statements prepared under the two alternative methods of IFRS and UK GAAP.

However amendments to UK GAAP introduced in 2013 have gradually been leading to a convergence of the UK GAAP to the IFRS accounting method. A recent publication by PriceWaterhouseCoopers LLP highlights the convergence of the new UK GAAP to IFRS\(^2\). According to the report by PWC the few areas that it deems as having significant differences between the new UK GAAP and IFRS is in the reporting of investments in joint ventures.

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\(^2\)Addresses the guidelines for convergence of UK GAAP to IFRS"Inform - US." Inform. © PricewaterhouseCoopers LLP, 02 Sept 2013. https://inform.pwc.com/inform2/show?action=informContent&id=1307234404108382
Specifically the IFRS in this case particularly prohibits the accounting method called the cost and fair value models, however the new UK GAAP allows such models to be used in accounting for a firm's investments in other entities in which it is not a parent company.

The IFRS method of preparing financial reports in comparison to its counterpart, the UK GAAP, is considered to be the stricter of the two. Literature from well-known auditing firms (E&Y, Deloitte, PriceWaterhouseCooper, KPMG, Grant Thornton) including a report by Grant Thornton³ indicates that IFRS holds more stringent standards than UK GAAP. Considering IFRS to be the more stringent of the two accounting standards we can assume IFRS to have a greater cost associated with adoption discussed later in the paper.

**Prior Research**

From previous research it is apparent that financial reporting is important for addressing market imperfections (Watts and Zimmerman 1990). Accounting numbers are seen as one of the sources for market investment decisions. Prior research including Watts and Zimmerman (1990) has tried to analyze the relation that exists between accounting numbers and stock prices.

Beginning from the notion that accounting information is influential on the market investment decisions we can try and look at the two sets of accounting standards employed in most countries and in particular our dataset as well. When it comes to accounting standards employed by private firms in the UK, the financial reporting choice is between using the International Accounting Standards or the country's own Generally Accepted Accounting Principles.

The Francis et al 2008 paper suggests that IAS adoption by private firms can reduce information asymmetry which in turn accommodates contracting with third parties, whether they are creditors to the firm, banks, trade partners and such. Current research based on publicly listed

³ “How will moving from UK GAAP to the IFRS for SMEs from 2012 impact on my company's accounts?” © Grant Thornton UK LLP 2010. All rights reserved.
http://www.grant-thornton.co.uk/pdf/IFRS%20for%20SMEsThefutureofUKGAAP.pdf
firms insinuates that IAS/IFRS enhances the quality of financial reporting relative to other means of financial reporting standards (Ashbaugh 2001).

However more recently Christensen (Christensen 2012) in his paper has argued against the merits of the perceived benefits that may be gained from voluntary IFRS adoption. Christensen (Christensen 2012) argues mainly against the study published by Kim and Shi (Kim and Shi 2012), which highlights the benefits of voluntary IFRS adoption by the extent to which firm-specific information is capitalized in stock prices.

Christensen (Christensen 2012) suggests that the crux of many published works including Kim and Shi (Kim and Shi 2012) that voluntary IFRS adoption is associated with significant benefits is causal may not necessarily be true. Christensen (Christensen 2012) indicates that voluntary IFRS adopters constitute a very small proportion of the global proportion of firms, which may mean that academics incorrectly estimate the benefits of voluntary IFRS adoption or that practitioners behave irrationally. Christensen (Christensen 2012) in his paper suggests that the error is on part of the academics and that the low frequency of IFRS adoption by firms is not entirely congruent with the idea of the perceived benefits of voluntary IFRS adoption. Christensen (Christensen 2012) argues that the reason for some capital market changes around voluntary adoption of IFRS may be attributed to endogeneity bias.

Based on the line of thought of Christensen (2012) one would be less convinced by arguments in favor of the benefit of adopting IFRS. This paper is also meant as an exercise in trying to ascertain which view holds greater credibility; the view that firm-incentives are in fact a stimulating factor for voluntary IFRS adoption or the alternative that the benefits are overestimated by academicians.

Beginning from the differences between IFRS and domestic accounting standards the paper by Ashbaugh et al (2001) looks at the differences between the domestic accounting standards used by countries and the International Accounting Standards. Their analysis suggests that domestic accounting standards allow for greater opportunity for earnings management relative to IAS. IAS minimizes management discretion in financial reporting and has greater disclosure requirements that make financial reports based on IAS more transparent.
Majority of the studies conducted on IAS adoption among firms have previously focused on firms that were publicly listed firms. The Francis et al 2008 paper is one of a few papers that try to mimic the same analysis for privately held firms. Although the dynamics of a private firm are different than those of a publicly listed firm, the publicly listed firm inherently suffers from an agency problem due to the separation of ownership between the owners and the management. The management and ownership are usually one and the same in a privately held firm, so it does not necessarily suffer from the agency problem that publicly listed firms suffer from.

However the Francis et al (Francis et al 2008) paper argues that private firms do have incentives to adopt a more clear and transparent financial reporting system in the form of IAS accounting standards due to contracting with external parties. Francis et al (2008) argue based on evidence from previous research that private firms have incentives for voluntary IAS adoption as it reduces information asymmetry and allows better contracting with external parties.

Given that IAS is a better more transparent medium of financial reporting than UK GAAP, we need to address the incentives for private firm to make the voluntary adoption of IAS as their financial reporting standards. One of the views on firms’ voluntary choice of IAS is based on how a firm’s reporting choice would be influenced by the payoffs it may get from tackling the market imperfections by choosing IAS as its financial reporting mechanism.

For instance, previous papers have found (Beck et al 2005) that firms that have previously engaged in or are more reliant on external financing are more likely to have higher levels of disclosure practices than firms that are not as reliant on external financing. Francis et al (Francis et al 2005) find that firms with greater disclosure practices tend to benefit from lower cost of capital. In a similar vein in our research we would expect firms using IAS/IFRS as financial reporting standards to have better and more transparent disclosures and thereby benefit from more favorable borrowing terms with external lenders.

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4 IAS and IFRS are sometimes used interchangeably in this paper because IAS was the old set of International accounting standards set by the IASC and were published until 2001 while IFRS were published from 2001 onwards and are issued by the IASB which succeeded the IASC.
Furthermore the Francis et al (Francis et al 2008) paper suggests that country and institutional factors play a major role in the voluntary adoption decision for firms. However our dataset is limited to that of private firms in the UK, which is a highly developed country with strong institutions and country factors. Moreover, Ray Ball (Ball 2001) in his paper argues that financial reporting is less effective if institutional factors such as strong legal infrastructure and enforcement mechanism are lacking. That, however, should not be a problem with our dataset as our focus is on the UK, which is a developed country (Francis et al 2006, Ball 2001).

The paper by Francis et al (Francis et al 2008) focuses on firm-level as well as country and institutional factors which shape the decision of firms to voluntarily adopt IAS reporting standards. The Francis et al (2008) paper also finds that firm-level incentives overshadow country factors in more developed countries. The dataset used in for this research is limited to private firms in the UK, so we can expect to see the impact of firm-level incentives on the IFRS adoption decision.

Country based factors admittedly have a significant impact on the voluntary decision of firms to adopt IFRS reporting standards. However research also suggests that firm-level factors cannot be completely ruled out. Durnev and Kim (Durnev and Kim 2005) find that certain firm attributes have a strong relation with the disclosure practices and quality of governance of the firm and that more transparent firms are valued higher in stock markets. It is not too hard to imagine that firm-level incentives have an effect on the private firm's choice to adopt IAS as a means of enabling greater transparency in their financial reporting and therefore reaping benefits from the greater transparency as discussed earlier.

Therefore one of the aims of this study is to address the question of whether firm-specific incentives have any bearing on the decision of private firms in the UK to make the voluntary decision of using IFRS. Francis et al (Francis et al 2008) already stress that firm-specific incentives play a greater role when the contracting environment in a country is strong. This study aims to verify whether firm-specific characteristics do have a role to play in the decision of private firms to voluntarily adopt IAS as their reporting mechanism.
Naturally then, if a firm decides to adopt IFRS, then that begs the question of what are the possible costs and benefits of such a decision and would those costs outweigh the benefits. The next section discusses the possible costs and benefits associated with IFRS adoption.

**Potential Costs and Benefits of IFRS Adoption**

**Direct Costs**

Adopting IFRS accounting standards entails a direct cost on the part of the firm which may relate to setting up a project team, adjusting their software and accounting system, familiarizing their staff with the new accounting method and possibly creating wider channels of communication with their subsidiaries (Bassemir 2011). Additionally the firm may require to consult with its auditors or external consultants more frequently if it has auditors, which would necessitate more fee payments. The transition from UK GAAP to IFRS may be a costly one, which may vary from firm to firm given each firms’ circumstances and nature of business.

In his paper Bassemir (Bassemir2011) also highlights the influence of the Big Five auditors in the context of the German private firms and how the Big Five may have an influence on a firm to switch to IFRS. The Big Five auditors tend to be more expensive and have more expertise on IFRS than other non-Big Five auditing firms. Therefore in the context of UK private firms, although we do not have data available for which auditing firms the firms hire in the dataset, we have limited data on the amounts they pay out to as auditing remuneration to their audit firms. Also to be noted is that not all firms in the dataset are subject to or have auditors. As will be discussed later, firms deemed ‘small firms’ by a criteria set by UK authorities are not obliged to have audits.

**Indirect Costs**

Bassemir (Bassemir2011) in his paper outlines indirect costs relating to IFRS adoption as the costs related to greater disclosure requirements under IFRS as opposed to German GAAP. The greater disclosure requirements under IFRS may potentially reveal proprietary information to external parties such as the firm’s competitors. With regards to the UK GAAP recent publications suggest a convergence of the UK GAAP to IFRS with some differences still
remaining on certain issues as highlighted by the Ernst&Young publication on comparison of the IFRS to UK GAAP. However UK GAAP appears to have less stringent disclosure requirements than IFRS according to the same report. Thus it would not be too farfetched to believe that IFRS stipulates disclosure of greater proprietary information as compared to UK GAAP.

**Cost Savings and Potential Benefits**

Bassemir (Bassemir2011) mentions cost savings that may result from adoption of IFRS that may be realized for firms that have foreign subsidiaries. Thus those firms can achieve common worldwide group reporting, which may reduce the cost of financial reporting. Bassemir (Bassemir2011) states that a common reporting for such firms may eliminate costs associated with the reconciliation from IFRS accounts to local UK GAAP.

In addition to investigating the firm-specific determinants of IFRS adoption, this study simultaneously tries to recognize the consequences of IFRS adoption without making any distinction between the determinants and consequences of IFRS adoption. The model used in this study uses an average over time of several independent variables relating to firm characteristics for firms that have and have not adopted IFRS over that period of time. Hence the model we use in this study is not enough to pinpoint whether a certain firm characteristic was present in pre-IFRS adoption or arose in the post-IFRS adoption period.

Regulators and accounting practitioners have generally expressed the view that greater transparency in preparation of financial statements under internationally recognized accounting standards such as the IAS/IFRS lowers the cost of capital of adopting firms (Daske 2006). This idea is based on the reduction of underlying risk of a business that would result from lowering of information asymmetry that comes from the greater transparency that IFRS/IAS adoption would beget. However the study by Daske (Daske 2006) shows otherwise, in that the benefits of lower cost of capital that are expected from adopting an international reporting standard are not really there.

The literature pertaining to benefits resulting from IFRS adoption is mixed and is mostly based on public firms rather than privately owned ones. The paper by Serfeim et al (Serafeim et al
2013) finds the quality of the information environment to improve among firms that are mandatory adopters of IFRS. Moreover the paper by Kim and Shi (Kim and Shi 2012) states that voluntary IFRS adoption aids the incorporation of firm-specific information into stock prices, which makes for a more efficient information environment for stock prices of those firms. However what remain to be seen are the benefits that can be realized for private firms especially in the UK upon adopting the IFRS accounting mechanism.

3. Sample Data Methodology

The sample and primary data for this research was obtained from the Bureau van Dijk and is based on the FAME database. The FAME database is comprised of comprehensive information on companies based in the UK and Ireland. The raw dataset contains information on private firms in the UK between the years 2005 and 2012 and contains approximately 6.3 million firm observations. Initially the data sample to be drawn from the raw dataset was derived based on size factors outlined by the UK authorities’ tax filing regulations. With this framework the dataset is filtered to render a more meaningful sample to the question that this paper is trying to address.

Most of the variables to be used in the proposed model are derived based on the data from the sample. For instance the dataset does not provide a dummy indicating whether the firm is an exporting firm or not. Thus we create the export dummy variable by adjudging whether the firm in the sample data have ever had export turnover, which is information provided in the dataset, for any of the years 2005 till 2012. If they do report export turnover for any of the years 2005 till 2012 we consider them to be exporting firms and assign them a value of 1 and 0 otherwise.

Similarly we create other variables that we used in our proposed model to create meaningful data variables to test in our proposed model. Scoping through some of the latent features of the variables to be used we find that long term liabilities for instance is reported as a negative figures, which is only a cosmetic factor that can be amended in the data. Based on the data for
long term liabilities we create a variable for leverage that takes the ratio of long term liabilities against the total assets.

Since the raw dataset is quite large, which makes it harder to manage and manipulate, one of our aims from the dataset is to draw a meaningful sample that would enable us to conduct improved analysis. Thus, the raw dataset is trimmed based on criteria drawn from the UK government’s classification for small firms, which are then excluded from the sample data.

The general size of the firms in the dataset is used as a filtering mechanism to trim the dataset where the dataset would become more meaningful to the question that the paper attempts to address. The British authorities outline conditions for companies to be considered small and give such companies various exemptions which include exemption from the company being audited. The UK authorities define the following conditions for a private company to be deemed as small, a company is considered small if it satisfies two of the conditions below:

1) Its turnover is less than £6.5 million
2) It has less than £3.26 million assets on its balance sheet
3) It has fewer than 50 employees

For the dataset in this research I trimmed the data based on all three conditions as a more stringent measure of flushing out the smaller firms. Smaller firms were cleared from the dataset, because summary statistics showed that not many of the smaller firms were using IFRS at any point.

We drop firm observations which have had less than £6.5 million turnover in any of the years from 2005 to 2012 or if the turnover observations for the firm are missing in all the years between 2005 till 2012. We do the same for firm observations with assets less than £3.26 million between 2005 and 2012 and also similar for firm observations which have fewer than 50 employees between 2005 and 2012.

Filtering the data along those criteria we curtail our firm observations to 71,285 for privately owned firms in the UK. Although this filtering of the dataset makes the dataset homogenous along the lines of higher turnover, assets and employees as the firm observations most likely to
be included in the filtered dataset, it is known from previous research that these factors are likely determinants for firms using IFRS. The paper by Andre et al (Andre et al 2012) use similar selection criteria in their paper in which they only use firms deemed to be large or medium sized private firms according to the Fourth EU Company Law Directive. They set the firm size criteria along the lines of firms having total assets more than € 2.5 million, turnover greater than € 5 million and the number of employees to be 50 or more.

The next step after rearranging and trimming the data was to incorporate the effect of IFRS adoption by firms into the sample data that was given. This was accomplished by removing the observations for the relevant independent variables for the years after that given firm had adopted IFRS. Sequentially all firm observations after adoption of IFRS were removed, which had the effect of essentially removing the firm-observation from the sample data after it had adopted IFRS. If a firm was a non-adopter, then it would remain in the sample data for all the years from 2005 till 2012.

For instance if a firm adopts IFRS in 2009, the independent variables for the remaining years 2010, 2011 and 2012 are assigned missing values for that firm for the remaining years of 2010, 2011 and 2012. This has the impact of removing that firm from the sample data for the ensuing period after its adoption of IFRS. There is the exception of firms that vacillate between using IFRS and UK GAAP for the period between 2005 and 2012, however those firms are very few in number and for research purposes we classify those firms as adopter firms and similarly their observation for independent variables is removed in the years subsequent to their initial year of IFRS adoption. The purpose behind effectively taking out adopter firms from the sample once they have adopted is to prevent double counting the impact of adopter firms in the data sample.

Initially the model that was proposed was to have been a cross-sectional logit regression which would have multiple independent variables such that each independent variable proposed in the model would actually have eight independent variables of each of the eight years for any particular independent variable. This led to complications with STATA as it did not support logit regressions with that substantial amount of independent variables, due to the fact that it uses
maximum likelihood estimators. Hence, having a large set of independent variables can lead to non-convergence of log likelihood estimators.

Moreover, such a model would be too extensive to be meaningful to the questions this paper is trying to address. Hence in order to simplify the model, I took the average over the eight years from 2005 till 2012 of each relevant independent variable. For instance one of the variables to be used in the model was size, which was simply a log of the total assets of the firms. The size variable was reported over the years from 2005 till 2012 thereby giving eight independent variables for size from each year. However by taking an average of the eight individual size variables for the eight different time periods I narrowed the size of firms into one independent variable by its average over time. I used a similar method with other independent variables to formulate variables to be used in the proposed model that is presented in the next section.

Also with such a large dataset one of the other challenges that arose was that of frequently occurring outliers which distorted some of the information presented in the independent variables. Most notably the variables on average leverage and average profitability had very curious standard deviations due to extreme values at their tails. In order to make those variables useable and meaningful for analysis I winsorized them both at 2% of their tails. Winsorizing those variables at 2% meant that the 2% observations at each tail of the two variables would be replaced by the next value counting inward from either of the extremes.

**Methodology**

The motivation for this paper comes from the abundant research on studying the impact of IFRS on firms. However most of the prior research on the topic is confined to firms in the publicly held domain, there has been little research in the realm of private firms. The reason for limited research on private firms primarily stems from the lack of comprehensive data on private firms as firms in the private domain in many countries are not legally required to make public disclosure of their financial reports unlike their public firm counterparts. Prior research, therefore, on IFRS adoption has been scarce and the few research that has been done has been limited to the European context, namely by Bassemir (2011) for private firms based in Germany and by Francis et al (2008) for private firms based in various countries.
This paper uses standard statistical methods to analyze the relation between the use of IFRS by private firms in the UK and firm relevant incentives for IFRS adoption. We use a logit model for the firm-observations we have in the filtered data. We drop firms from the data in the successive years in which they adopt IFRS. The purpose of doing this was to avoid an endogeneity problem as the firms that have adopted IFRS may have improved explanatory variables resulting from the adoption of IFRS rather than the other way around. This would help us better identify firm factors as determinants rather than consequences of IFRS adoption. So we curtail our firm observations each year for those firms that adopt IFRS in the next period and repeat the exercise for each year of observed data.

The independent variables used in the model are an average over time for the periods 2005 till 2012. For instance the variable size used in the model is an average over time for the annual time observations of the log total assets for each firm. We have similar average data observations for all the independent variables used in the model.

**Model to Be Tested**

We can use a logit regression for the average of data between 2005 and 2012 in which the dependent variable is the dummy variable which takes on value of 1 if the firm has ever used IFRS in any of the years between 2005 and 2012. The dependent variable shown in the following model is a transformed version of the dependent variable, in that it is the natural log of the odds of the dependent variable. Hence the logistic regression gives probability of IFRS adoption. The independent variables would be the following:

\[
\text{accounting practice} = \beta_0 + \beta_1 \exp + \beta_2 \text{size} + \beta_3 \text{lev} + \beta_4 \text{pro} + \beta_5 \text{ci} + \beta_6 \text{aud rem} + \beta_7 \text{group} + \epsilon
\]

Accounting practice dummy - the dependent variables in the logit regressions will be a dummy variable, which takes on the value 1 if the firms in the sample adopt IFRS accounting standards at any time between 2005 and 2012 and is 0 otherwise.

Average export dummy - export dummy variable-assigns value of 1 if the firm has reported export, the export dummy also acts as a proxy for the international orientation of a firm.
Average size - a variable of size as log of firms’ assets for each year (2005-2012), then the average over the eight years is taken

Average leverage - a variable for leverage, which is the ratio of total long term liabilities to total assets (2005-2012), and take the average of all year observations for each firm

Average pro - a variable for profitability, which is a firm's profit margin ratio or EBITDA/total sales (2005-2012), and average over the eight years for each firm

Average capital intensity - a variable for capital intensity, which is measured as ratio of fixed assets to total assets (2005-2012), and average over the eight years for each firm

Average auditor’s remuneration - a variable for auditor remuneration, which is the natural log of the auditors’ remuneration (2005-2012), and average over the eight years for each firm

Group dummy - a dummy variable that has value 1 if the firms' registered accounts are of a group and 0 otherwise, meaning whether the firm has any subsidiaries or not and whether it makes consolidated accounts or not

The dependent variable average accounting practice dummy and the two dependent variables average group dummy and average export dummy do not need to be averaged because they are dichotomous variables and are consistent over each time period observations for the firms.

The model to be applied is a limited dependent variable model; more specifically it is a logit regression where the dependent variable is considered to be a binary outcome. The dependent variable in this takes on a value of either 0 or 1, therefore the model is what is called a binary response model. The dependent variable we use in our model in this case assigns a value of 1 if a firm is considered to be an adopter firm and is 0 otherwise. The coefficients from the logit model are interpreted based on odds ratios, which may be derived by exponentiation of the coefficients. The relation between the odds ratio and probability of the dependent variable is a monotonic one. Therefore an increasing odds ratio is indicative of an increased probability of the event in this case the dependent variable.
The crux of any logit model however rests on a logistic transformation because the dependent variable is binary. The interpretation of the coefficients is not meaningful in the same way as interpretation of OLS coefficients, therefore I use a marginal effects interpretation to give an understanding of the relations between the dependent variable and the independent variables, which is discussed later in the paper.

**Limitations of the Model**

One of the drawbacks of this model is that it is not meant to clearly differentiate whether a firm factor used in the model is a determinant or a consequence of IFRS adoption. For example the independent variable on exporting firm reports 1 if the firm is an exporting firm and 0 otherwise. Suppose if a firm in the data begins to export in the year that it adopts IFRS, it would be extremely difficult to tell whether the firm adopted IFRS because it wanted to trade with international trading partners which would make exporting a determinant of that firms IFRS adoption or whether that firm began exporting because of the fact that it had adopted IFRS and felt that its IFRS reporting allowed it to trade with international clients in which case the exporting would be a consequence of the firm adopting IFRS.

In order to tilt the model to be a better model for explaining determinants of IFRS I filtered the data such that we removed firm-year observations for years after the firm had adopted IFRS. Thus for an IFRS adopting firm in the dataset there is information available for that firm up until and including the year in which it adopted IFRS and thereafter the firm is virtually removed from the dataset. Thus for adopter firms we only see information that is pre-IFRS adoption which is more likely to explain the IFRS adoption decision in terms of its determinants. However despite that I still believe as the example above demonstrates that the model is not foolproof in isolating firm factors as determinants or consequences of IFRS adoption.

**Determinants of IFRS Adoption and Independent Variable Hypotheses:**

*International Orientation/Group Firm*

Firms that have international operations tend to have a very different mix of stakeholders than firms that have mainly localized operations. Therefore one may expect proxies that relate to a firm’s international orientation to be a determinant and incentive for firms to be using IFRS, as
international stakeholders are more likely to be familiar with IFRS than the local accounting standards of a firm in this case the UK GAAP. Cuijpers and Buijink (Cuijpers and Buijink2005) cite ‘International Operations’ as one of the factors determining firms’ likelihood to adopt non-local GAAP. It is not hard to make the same link to IFRS adoption in the case of private UK firms.

To represent the international orientation of a firm in our sample we create a proxy dummy variable called the export dummy, which is a binary value that is 1 for firms that have had export or international revenue in any of the years between 2005 till 2012 and is 0 otherwise. Based on previous literature it is predicted that firms with greater international orientation to be more suitable candidates for IFRS adoption. Also firms that tend to have subsidiaries in different countries or otherwise tend to be larger more internationally oriented firms and thus would expect group firm to have a positive relation with a firm’s IFRS adoptability status.

Size

Prior research shows that larger firms tend to have more disclosure compared to smaller firms (Meek et al 1995; Zarzeski 1996; Ashbaugh 2001; Cuijpers and Buijink 2005). IFRS adopters are expected to be larger firms and therefore are expected to have lesser information asymmetry. Moreover it is expected that IFRS adoption has costs associated with it and firms that are larger tend to be able to better cope with the costs associated with adopting IFRS (Bassemir 2011). Therefore the size of a firm may be a determinant of whether a firm is or is not an IFRS adopting firm, and I would expect larger firms to be more likely candidates for IFRS adoption.

We use a size variable by taking the natural log of the total assets of the firms in the sample data. This is due to the large differences in the assets sizes of the larger and smaller firms in the sample data we have.

Auditor’s Influence/Auditor’s Remuneration

The auditor itself may be either a determinant or consequence of a firms IFRS adoption. Evidence in Bassemir (Bassemir2011) suggests that firms that use one of the ‘Big Five’ auditors, defined as the firms BDO, Deloitte, KPMG, PriceWaterhouseCoopers and Ernst&Young, tend to be more likely to use IFRS reporting mechanism. Bassemir argues that the ‘Big Five’ have a
comparative advantage in that their ‘personnel is better trained for auditing IFRS and that they can rely on an international network of IFRS experts’ (Bassemir 2011).

Thus we use a similar proxy variable for auditor’s, by creating a variable by taking the natural log of the remuneration paid out to the auditor of the firms. Auditor remuneration indirectly represents the size and quality of the auditor employed by the firm. Larger more qualified and therefore better compensated audit firms would be expected to have better trained personnel that may be experts of IFRS, as suggested by Bassemir (Bassemir 2011). Consequently we expect higher auditor remuneration to be associated with a greater likelihood of the firm using IFRS as opposed to UK GAAP.

**Capital Structure**

The findings of Bassemir (Bassemir 2011) also suggest that firms that are more leveraged are more likely to switch to IFRS financial reporting. It is understood that having greater transparency in financial reporting under IFRS may lead to better contract negotiating with debtors, thus higher leverage firms are more suitable IFRS adopters. Therefore we incorporate the notion of capital structure into our model in the form of leverage of firms in our sample data and expect it to have a positive relation with IFRS adoptability.

**Entry Barriers/Capital Intensity**

Capital Intensity, in the model, is measured as the ratio of fixed assets to total assets and represents entry barriers in the market and industry according to Bassemir (Bassemir 2011). Bassemir posits a positive relation between IFRS adoption and capital intensity because of higher proprietary costs associated with them. Bassemir (Bassemir 2011) describes proprietary costs as indirect costs that arise from extensive disclosure required under IFRS regime as opposed to local UK GAAP. However there is also the view that firms with higher capital intensity have a greater amount of their resources invested in fixed assets and therefore require less monitoring (Andre et al 2012). Therefore, going with the view presented in the Andre et al paper, I expect to find a negative relation between IFRS adoption and capital intensity.
Profitability

Profitability in the model is taken to be the ratio of earnings before interest, tax and depreciation. Based on prior literature we can conjecture that profitability would not have any relation with the firms IFRS adoption status, as IFRS adoption usually tends to be a long term choice and may be take regardless of the firm’s profitability (Andre et al 2012).

4. Empirical Results

Univariate Statistics

Table 1 and Table 2 present univariate and descriptive statistics of the dependent and independent variables we use in our logistic regressions. Table 1 and 2 present statistics for the average over time of variables that are used in the proposed model.

As indicated it is quite apparent that the proportion of firms using the IFRS method for accounting make up a very small fraction of the firms in the sample data. For a data sample of approximately over 70000 firm observations the number of firms using IFRS amounted to a very small fraction. However the number of firms using IFRS increased over the period from 2005 to 2012. Although this fact is not discernible from the statistics provided in Tables 1 and 2 because they report variables that are averaged over time, the individual statistics for the firms adopting IFRS increased over time with a slight drop towards the end of 2012.

The relatively small number of firms using IFRS as their reporting mechanism across the sample data shows the expected net benefits from adopting IFRS may not be that substantial. This result is common among relevant similar papers including Bassemir (Bassemir2011), Francis et al (Francis et al 2008) and Andre et al (Andre et al 2012). There is consistent evidence of the lack of popularity of IFRS adoption among private firms, which may be indicative of a low degree of net realizable benefits to be attained from IFRS adoption. However such a conclusion this early into the analysis would be premature, therefore we delve into deeper analysis to explore the consequences and determinants of IFRS adoption.
The following independent variables are log variables: size, profitability and auditor’s remuneration. Then the average over time of those variables are the variables that we eventually utilize in the model. As is observed from Table 1, a good proportion of the data pertaining to certain variables is missing despite the filtering of the vast dataset that was initially available. However we can assess basic essentials from the data presented in Table 1. We observe that the size of the firms in the dataset is relatively large for the observed firms, due to the filtering of our raw dataset based on preconditions for asset size, turnover and number of employees the firm utilizes. This is a natural effect that we ought to expect as we had filtered and arranged the data along threshold levels of asset size, turnover and number of employees, therefore the eventual sample we use for analytical purposes has higher average asset size, turnover and number of employees.

A similar elementary glance over the other independent variables including the dummy for export we find that of the 71285 firms 11638 firms we’re considered to be exporting firms or had had export revenue in any of the years between 2005 till 2012. This shows that a significant set of the data sample we use comprises of firms with an international orientation. Further analysis using the logit regression can reveal the relation between firms using IFRS and a firm’s international orientation which is given by the proxy of the export dummy variable.

Other salient characteristics that are easily discernible from the data sample as indicated by Table 1 are the vast range of differences among the firms that make up the data sample. For instance the standard deviation alone on the size variable which is a log adjusted variable shows us the extent of the diversity of firms that are present in the sample with regards to asset size.

Table 3 gives a categorical breakdown of the variables by differentiating between adopting and non-adopting firms. It is already evident from the means presented in Table 3 that firms that are IFRS adopters are on average ahead of their non-adopting counterparts in many of the independent variables. For instance the average size of the IFRS adopting firm in the sample is relatively larger than the average size of the non-adopting firm. One would naturally expect IFRS adopting firms to be larger firms, because larger firms may have greater incentives for
adoption which may be a result of perhaps a firm’s intentions to go public eventually. However that question is beyond the scope and range of this study. Andre et al (2012) in their study find the size of a firm to have a positive impact on the voluntary IFRS adoption decision of a private firm.

Furthermore Table 4 reports the pairwise correlation of all the variables including the independent and the dependent variable. The pairwise correlation of the variables give us a rough idea of how the variables co-react with respect to each other. It is already quite apparent from Table 3 that the level of auditor’s remuneration, the capital intensity, the size and the group status are relatively highly correlated with whether the firm is an ‘adopter’ firm or not. The correlations can give us an early idea of what the relationships are among the variables in our model as well as address issues like multicollinearity.
## Table 1. Continuous/Discrete Type Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Observations</th>
<th>Mean</th>
<th>SD</th>
<th>25th Quartile</th>
<th>Median</th>
<th>75th Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean size</td>
<td>70720</td>
<td>6,486858</td>
<td>3,003654</td>
<td>4,108158</td>
<td>6,814623</td>
<td>8,621411</td>
</tr>
<tr>
<td>mean leverage</td>
<td>43054</td>
<td>0,4678859</td>
<td>0,877503</td>
<td>0,0359116</td>
<td>0,1824152</td>
<td>0,5326295</td>
</tr>
<tr>
<td>mean profitability</td>
<td>70246</td>
<td>0,1989154</td>
<td>1,356017</td>
<td>-0,0357143</td>
<td>0,0486096</td>
<td>0,1899564</td>
</tr>
<tr>
<td>mean capital intensity</td>
<td>60364</td>
<td>0,342016</td>
<td>0,3106105</td>
<td>0,064179</td>
<td>0,25</td>
<td>0,5818855</td>
</tr>
<tr>
<td>mean auditor's remuneration</td>
<td>50863</td>
<td>2,04652</td>
<td>1,257443</td>
<td>1,171587</td>
<td>2,047172</td>
<td>2,779971</td>
</tr>
</tbody>
</table>

Notes: Table 1 presents descriptive statistics for the discrete or non-binary type variables which we have in our model. The table presents the number of observations, mean, standard deviations and the 25th, 50th and 75th quartiles for each of those variables as well. The variables on leverage and capital intensity shown here have been winsorized at 2% of the tails for both the variables. Hence the standard deviations and means reported for those two variables in this table are much lower than in the actual sample of data that I used.
Table 2. Dichotomous/Binary Type Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Observations</th>
<th>Mean</th>
<th>SD</th>
<th>Observations</th>
<th>% of firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>accounting practice</td>
<td>71285</td>
<td>0.0470365</td>
<td>0.2117185</td>
<td>3353</td>
<td>4.70%</td>
</tr>
<tr>
<td>exporting firm</td>
<td>68200</td>
<td>0.1706452</td>
<td>0.3762014</td>
<td>11638</td>
<td>17.06%</td>
</tr>
<tr>
<td>group firm</td>
<td>68200</td>
<td>0.1311877</td>
<td>0.337608</td>
<td>8947</td>
<td>13.12%</td>
</tr>
</tbody>
</table>

Notes: Table 2 presents descriptive statistics for the binary type variables used in the model. The last two columns of Table 2 present the number of observations and the total proportion of observations which have value 1 for each of the variables accounting practice, exporting firm and group firm. It is already evident from the data that a very small proportion of the firms in the sample are IFRS adopter firms. It is still quite early to draw any meaningful conclusion about IFRS adoption simply based on the fact that a small proportion of firms in the sample are IFRS adopters.
Table 3. Univariate Statistics for IFRS adopting and non-adopting firms

<table>
<thead>
<tr>
<th>for IFRS adopting firms</th>
<th>Variables</th>
<th>Observations</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>accounting practice</td>
<td>3353</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>exporting firm</td>
<td>268</td>
<td>0.1940299</td>
<td>0.3961918</td>
<td></td>
</tr>
<tr>
<td>group firm</td>
<td>268</td>
<td>0.3656716</td>
<td>0.4825191</td>
<td></td>
</tr>
<tr>
<td>mean size</td>
<td>3340</td>
<td>9.347729</td>
<td>3.265154</td>
<td></td>
</tr>
<tr>
<td>mean leverage</td>
<td>2512</td>
<td>0.4179116</td>
<td>0.663846</td>
<td></td>
</tr>
<tr>
<td>mean profitability</td>
<td>3124</td>
<td>-0.7128332</td>
<td>2.133051</td>
<td></td>
</tr>
<tr>
<td>mean capital intensity</td>
<td>3078</td>
<td>0.4419241</td>
<td>0.3136504</td>
<td></td>
</tr>
<tr>
<td>mean auditor's remuneration</td>
<td>2902</td>
<td>3.32962</td>
<td>1.752785</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>for non-IFRS adopting firms</th>
<th>Variables</th>
<th>Observations</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>accounting practice</td>
<td>67932</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>exporting firm</td>
<td>67932</td>
<td>0.1705529</td>
<td>0.3761206</td>
<td></td>
</tr>
<tr>
<td>group firm</td>
<td>67932</td>
<td>0.1302626</td>
<td>0.3365946</td>
<td></td>
</tr>
<tr>
<td>mean size</td>
<td>67380</td>
<td>6.345046</td>
<td>2.91805</td>
<td></td>
</tr>
<tr>
<td>mean leverage</td>
<td>40542</td>
<td>0.4709823</td>
<td>0.8889676</td>
<td></td>
</tr>
<tr>
<td>mean profitability</td>
<td>67122</td>
<td>-0.1749965</td>
<td>1.303765</td>
<td></td>
</tr>
<tr>
<td>mean capital intensity</td>
<td>57286</td>
<td>0.3366479</td>
<td>0.3095375</td>
<td></td>
</tr>
<tr>
<td>mean auditor's remuneration</td>
<td>47961</td>
<td>1.968883</td>
<td>1.177011</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Table 3 presents descriptive statistics for all the variables first under the condition that the firms are adopter firm and secondly under the condition that the firms are non-IFRS adopting firms. We can already see from the means of the various variables, under the two separate categories of adopter and non-adopter firms, that adopter firms for instance on average tend to be larger in terms of asset size, have higher leverage on average and pay their auditor’s more on average.
Table 4. Pearson Correlation Matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>accounting practice</th>
<th>exporting firm</th>
<th>group firm</th>
<th>mean size</th>
<th>mean leverage</th>
<th>mean profitability</th>
<th>mean capital intensity</th>
<th>mean auditor's remuneration</th>
</tr>
</thead>
<tbody>
<tr>
<td>accounting practice</td>
<td>1</td>
<td>-0.0019</td>
<td>0.0416</td>
<td>0.0787</td>
<td>0.0104</td>
<td>-0.0226</td>
<td>0.0317</td>
<td>0.0904</td>
</tr>
<tr>
<td>exporting firm</td>
<td>-0.0019</td>
<td>1</td>
<td>0.1166</td>
<td>0.1624</td>
<td>-0.0351</td>
<td>0.0209</td>
<td>0.0209</td>
<td>0.2577</td>
</tr>
<tr>
<td>group firm</td>
<td>0.0416</td>
<td>0.1166</td>
<td>1</td>
<td>0.3225</td>
<td>-0.0374</td>
<td>-0.1703</td>
<td>-0.2563</td>
<td>0.0043</td>
</tr>
<tr>
<td>mean size</td>
<td>0.0787</td>
<td>0.1624</td>
<td>0.3225</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean leverage</td>
<td>0.0104</td>
<td>-0.0351</td>
<td>-0.0374</td>
<td>-0.1703</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean profitability</td>
<td>-0.0226</td>
<td>0.0209</td>
<td>0.0524</td>
<td>0.092</td>
<td>-0.2563</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mean capital intensity</td>
<td>0.0317</td>
<td>-0.1213</td>
<td>0.1714</td>
<td>0.2246</td>
<td>0.1126</td>
<td>0.0293</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>mean auditor's remuneration</td>
<td>0.0904</td>
<td>0.2577</td>
<td>0.3892</td>
<td>0.6961</td>
<td>-0.0725</td>
<td>0.0343</td>
<td>0.0043</td>
<td>1</td>
</tr>
</tbody>
</table>

Notes: Table 4 presents the correlation matrix for all the variables used in the model. Based on the correlations between the variables we can already see which variables co-react with each other and which ones are not affected by each other. The correlation matrix is also helpful in indicating which independent variables are correlated with each other which would give rise to a potential multicollinearity problem. Some of the highest correlations are between mean size and group firm, mean size and mean capital intensity, mean auditor’s remuneration and mean size and mean auditor’s remuneration and group firm. The multicollinearity problem can be a hindrance especially when you use maximum likelihood for estimation which is an iterative process and the model may fail to converge due to multicollinearity. The logit model uses estimates based on the maximum likelihood.
**Logistic Regression and Marginal Effects Interpretation**

Table 5a and 5b shows the logistic regression results with robust standard errors, where the dependent variable is the accounting practice dummy of the firm and the independent variables are the averages over the time 2005 till 2012 of firms’ size, leverage, capital intensity, auditor’s remuneration, group dummy and the export dummy. The export dummy and the group dummy are constant over the time interval 2005 till 2012 and therefore are time invariant. As is quite apparent, some of the independent variables in the logit regression are statistically significant which is meaningful to our analysis of the voluntary IFRS adoption decision. Among the statistically significant independent variables at around the 1% level of significance we have the export dummy, the capital intensity of a firm and the auditor’s remuneration that a firm pays. Although the independent variable on profitability is also shown as statistically significant at the 1% level, that result may be attributable to the winsorizing of that variable earlier.

The results from the logit regression need to be interpreted in terms of their odds ratios, which is essentially a mathematical transformation on probability measures. The coefficients presented in table 5 are presented in log odds form and need to be transformed to odds by simple exponentiation.

Table 6 reports the same logistic regression model with the odds ratios. Unlike probabilities which range from 0 to 1, the odds ratios can range from 0 to infinity. We see similar results in table 6 as we did before, the independent variables statistically significant at the 1% level of significance are the exporting firm dummy, the capital intensity and the auditor’s remuneration. The size of the odds ratios for the different independent variables reveals that the auditor’s remuneration and the capital intensity of a firm have the greatest impact on the odds of a firm being an ‘adopter’ firm.

The results I found from the logit regression are revealing in light of previous literature on the topic in that they reaffirm some of the outcomes that are seen in previous literature. My regression results would indicate that ‘adopter’ firms are larger in size, less likely to be...
exporting or internationally oriented firms, being more capital-intensive and to pay more in remuneration to their auditors. Also this study found that profitability had had a statistically significant impact on a firm’s IFRS adoption decision and that more profitable firms were less likely to adopt IFRS. However, a qualifier here is that the variable on profitability had been winsorized in order to eliminate extreme values, thus which could have resulted in statistically significant factor on profitability in the model.

However our findings in some regards also compel us to reconsider the triviality of the voluntary adoption questions as was put forth by Christensen (2012). To start with we find a substantially small proportion of IFRS adopters in our sample as does Christensen (2012) which he aptly points out in his paper. The proportion of ‘adopters’ in our sample becomes significantly higher when we filter our sample along different dimensions of firm size as was discussed previously. This is itself illustrative of the role of firm size in increasing the likelihood of a firm’s voluntary adoption decision. Subsequently our findings also indicate that many of the determinants of the voluntary adoption decision that we expected were not entirely there.

We had posited that firms that are ‘adopters’ are those which are large in size, more internationally orientated, have lower capital intensity, more leveraged and give more compensation to their auditors. Our findings from the data supports, to some degree, the description of the ‘adopter’ candidate firm. The logit regression I obtained gives credence to ‘adopter’ firms being large, less internationally inclined, have greater capital intensity and pay more to their auditors.

Table 5a and 5b present the logit regression results reporting the coefficients and odds ratios in the two tables respectively. We can already see that some of the results reported in tables 5a and 5b were expected while others were not anticipated. From tables 5a and 5b we see that the independent variable on firm average profitability shows a statistically significant result. Prior literature, in particular the Andre et al (2012) paper had found profitability and capital intensity as irrelevant to the firms IFRS status. It is interesting to see that our results show otherwise, than what the paper had suggested. However it has to be noted that the variable on profitability had been winsorized at 2% of each of its tails, which had altered some of the
extreme data present in that variable. Naturally the variation in that variable would have been reduced significantly after curtailing its tails and eliminating the extreme values.

Running the same logistic regression on un-winsorized variables on profitability and leverage we found that those variables had high standard deviations and at least the variable on profitability in that case was not statistically significant. It was also quite interesting to see the variable of capital intensity to play a role in the IFRS adoption decision based on the results we had obtained from applying the logit model to our sample data.

Figures 1 through 5 in the appendix A provide a graphical outline of the variables we were dealing with in our model. We can easily see that the two variables we had winsorized, average leverage and average profitability, still have extreme sets of values despite curtailing the 2% of their extreme values using the winsorizing method.

Table 6 provide the marginal effects of each of the independent variable on the binary dependent variable of IFRS adoption. We can observe the most salient results from this table are that we find the variables exporting firm, mean capital intensity and mean auditor’s remuneration as statistically significant at the 1% level of significance. We also find that of the three independent variables which are statistically significant at the 1% level, the variable on capital intensity has the most impact on the firm’s probability of adopting the IFRS accounting methodology. It also has to be noted that the variable on size is statistically significant at the 10% level of significance.

Table 6 also outlines the magnitude of the effect each of the independent variable has on the IFRS adoption decision of private firms. With regards to our expected outcomes from the model we found some interesting results as Table 6 indicates. We found certain peculiar relationships as specified by the marginal effects on our independent variables. Perhaps one of the most unexpected surprises was to see that firms that are internationally oriented are less likely to be IFRS adopters, which is quite contrary to prior literature outcomes that were discussed earlier in this paper.
The marginal effects represented in table 6 provide essentially an elasticity at the mean of the independent variables. With respect to the two binary independent variable in the table, export firm and group firm, they are interpreted for a change in value of 0 to 1. In that case the probability of a firm being an adopter firm if it is also an exporter firm decreases by 0.124% given every other independent variable is held at the mean and similarly the probability increases by 0.067% if the firm is a group firm and has subsidiaries.

With regards to the discrete or almost continuous independent variables in table 6 the interpretation is a little different in that the marginal effects for continuous variables in table 6 are meaningful for small changes in the independent variables, because the marginal effects present a measure of linear elasticity against a non-linear logistic function. Hence for instance we can interpret the marginal effects coefficient on mean capital intensity to give a (0.001x0.0023117) 0.0002% increase in probability of a firm being an IFRS adopter firm given a 0.1% increase in the mean capital intensity ratio. Similarly one can calculate similar expected changes in the probability of success in the dependent variable for a given small change in any other continuous variable given all the other independent variables are held at their means.

The other most economically significant independent variable other than mean capital intensity, according to table 6, was the mean auditor’s remuneration. For a similar 0.1% change in mean auditor’s remuneration there is a (0.001x0.0018259) 0.00018% change in the probability of a firm being an IFRS adopter firm.

In light of the hypotheses that were predicted for the independent variables I found that the results contradicted the hypothesis for the independent variables exporting firm and mean capital intensity. It was expected that firms that tend to be internationally oriented would tend to be more likely to adopt IFRS as it would give them greater transparency and therefore help maintaining trade relations with export partners in different countries (Bassemir 2011). Also it was expected that firms that had invested more in fixed costs would have had a smaller proportion of current assets which would demand lesser monitoring requirements and would be less likely to adopt IFRS(Andre et al 2012). However the results pointed to the opposite and showed a positive relation between capital intensity and IFRS adoption.
With regards to the hypothesis on capital intensity the findings tip in favor of the prediction that managers are less eager to release proprietary information under disclosure policies of IFRS, when capital intensity is high which mean that entry barriers are high in that case too (Bassemir 2011). With regards to the findings on international orientation the results is astounding as prior literature suggests to the contrary. Perhaps the same argument for managers’ reluctance to release proprietary information can be applied in the context of international trading where managers do not want to give away important proprietary information to international trading partners and hence the negative relation.
<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Expected Sign</th>
<th>Coefficients</th>
<th>Robust Std. Error</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>exporting firm</td>
<td>(+)</td>
<td>-0.4408368***</td>
<td>0.1801336</td>
<td>-2.45</td>
</tr>
<tr>
<td>group firm</td>
<td>(+)</td>
<td>0.2398105</td>
<td>0.1569054</td>
<td>1.53</td>
</tr>
<tr>
<td>mean size</td>
<td>(+)</td>
<td>0.1347221*</td>
<td>0.0711892</td>
<td>1.89</td>
</tr>
<tr>
<td>mean leverage</td>
<td>(+)</td>
<td>0.1450819</td>
<td>0.0963761</td>
<td>1.51</td>
</tr>
<tr>
<td>mean profitability</td>
<td>no prediction</td>
<td>-0.1879353***</td>
<td>0.0443434</td>
<td>-4.24</td>
</tr>
<tr>
<td>mean capital intensity</td>
<td>(-)</td>
<td>0.82281***</td>
<td>0.2901864</td>
<td>2.84</td>
</tr>
<tr>
<td>mean auditor's remuneration</td>
<td>(+)</td>
<td>0.6498923***</td>
<td>0.123528</td>
<td>5.26</td>
</tr>
<tr>
<td>constant</td>
<td></td>
<td>-8.799222***</td>
<td>0.4047874</td>
<td>-21.74</td>
</tr>
</tbody>
</table>

Pseudo R-squared: 0.1294
Log pseudo-likelihood: -948.3261
N: 32605
# Table 5b. Logistic Regression Result Reporting Odds Ratio

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Odds Ratio</th>
<th>Robust Std. Error</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>exporting firm</td>
<td>0.6434977***</td>
<td>0.1159156</td>
<td>-2.45</td>
</tr>
<tr>
<td>group firm</td>
<td>1.271008</td>
<td>0.1994281</td>
<td>1.53</td>
</tr>
<tr>
<td>mean size</td>
<td>1.144219*</td>
<td>0.081456</td>
<td>1.89</td>
</tr>
<tr>
<td>mean leverage</td>
<td>1.156134</td>
<td>0.1114237</td>
<td>1.51</td>
</tr>
<tr>
<td>mean profitability</td>
<td>0.8286683***</td>
<td>0.036746</td>
<td>-4.24</td>
</tr>
<tr>
<td>mean capital intensity</td>
<td>2.276889***</td>
<td>0.6607223</td>
<td>2.84</td>
</tr>
<tr>
<td>mean auditor’s remuneration</td>
<td>1.915335***</td>
<td>0.2365974</td>
<td>5.26</td>
</tr>
<tr>
<td>constant</td>
<td>0.0001509***</td>
<td>0.0000611</td>
<td>-21.74</td>
</tr>
</tbody>
</table>

Pseudo R-squared: 0.1294

Log pseudo-likelihood: -948.3261

N: 32605

Notes: Tables 5a and 5b present the results from the actual logit regression results, however without the marginal effects in the following table 6 the interpretation of the results obtained in tables 5a and 5b is meaningless. Table 5b reports odds ratios which are obtained by taking the exponential of the specified model and effectively taking the exponential of the coefficients in 5a. The odds ratio reported in table 5b represent the ratio of the probability of a success (IFRS adoption) to the probability of a failure (no IFRS adoption). Hence higher odds ratio as a rule of thumb tend to increase the chance of success of occurrence (IFRS adoption). Table 5b helps us see the magnitudes of each of the independent variables and its already easy to identify that variables on mean auditor’s remuneration and mean capital intensity rank high in terms of their impact on the probability of success (IFRS adpotion). *, **, *** signify statistical significance at the 10%, 5% and 1% level of significance respectively.
Table 6. Marginal Effects of Logistic Regression

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Expected Sign</th>
<th>dy/dx</th>
<th>Robust Std. Error</th>
<th>Critical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>exporting firm</td>
<td>(+)</td>
<td>-0,0012385***</td>
<td>0,00053</td>
<td>-2,35</td>
</tr>
<tr>
<td>group firm</td>
<td>(+)</td>
<td>0,0006738</td>
<td>0,00043</td>
<td>1,57</td>
</tr>
<tr>
<td>mean size</td>
<td>(+)</td>
<td>0,0003785*</td>
<td>0,0002</td>
<td>1,85</td>
</tr>
<tr>
<td>mean leverage</td>
<td>(+)</td>
<td>0,0004076</td>
<td>0,00028</td>
<td>1,47</td>
</tr>
<tr>
<td>mean profitability</td>
<td>no prediction</td>
<td>-0,000528***</td>
<td>0,00013</td>
<td>-4,1</td>
</tr>
<tr>
<td>mean capital intensity</td>
<td>(-)</td>
<td>0,0023117***</td>
<td>0,00079</td>
<td>2,92</td>
</tr>
<tr>
<td>mean auditor's remuneration</td>
<td>(+)</td>
<td>0,0018259***</td>
<td>0,00036</td>
<td>5,14</td>
</tr>
</tbody>
</table>

Notes: To be able to assess the economic significance of the main results, I computed the marginal effects which are shown in table 6. Marginal effects signify the relative impact on the probability of IFRS adoption by the private firm for a change in the independent variable. For a continuous variable the marginal effect is classified as a relatively small change in the independent variable while holding all other variables constant at their sample means. For a binary variable the marginal effect represents the increase in probability of IFRS adoption when we replace the binary independent variable with the value 1. The table shows that the factors most affecting IFRS adoption decision of a private firm and which are also statistically significant at the 1% level of significance are the exporting firm variable, mean capital intensity and mean auditor’s remuneration. We can see that mean profitability is also statistically significant at the 1% level, however its impact is relatively small compared to the other three variables identified before and also it is a winsorized variable. Only mean capital intensity, exporting firm and mean auditor’s remuneration are statistically significant at the 1% level of significance. *, **, *** signify statistical significance at the 10%, 5% and 1% level of significance respectively.
5. Summary and Conclusion

The main aim of this paper was that it investigates the impact of IFRS adoption by private firms in the UK without making a distinction whether the firm-specific factors being investigated were determinants or consequences of IFRS adoption. Although the methodology used was such that we try to isolate the determinants in the model by removing observations after a firm had adopted IFRS, it is still difficult to wholly confirm whether a firm characteristic was a determinant or a consequence of IFRS adoption. The paper tried to identify firm-specific characteristics that were more prominent among IFRS adopter firms. Based on knowledge gathered from prior literature I composed a model that may shed light on firm characteristics which may induce private firms to adopt IFRS. One of the drawbacks on literature on this topic was that the majority of the literature was based on research on public firms and very there was very little such literature on private firms.

Based on the literature I found two paradigm views on the IFRS adoption decision of firms. One view held that the benefits and impact of IFRS adoption is overestimated by researchers and academics (Christensen 2012), while the other view expressed the belief that IFRS adoption was beneficial to firms for various reasons and that a particular set of firms were more likely to adopt IFRS than others (Francis et al 2008, Andre et al 2012, Bassemir 2011).

Then I applied the model I had gathered from various papers which would help assess the determinants and or consequences of IFRS adoption among private firms. The model posited a set of independent variables which I believed, based on prior literature, could have a causal effect on the decision of private firms to use IFRS as their reporting mechanism. I identified the following factors as contributing to the IFRS adoption decision of a private firm: international orientation, size of the firm, auditor’s influence, capital structure and entry barriers.

In the results pertaining to the independent variables I find that a firm likely to be a good candidate to be an IFRS adopter firm is one which is less internationally oriented, tends to be large, has high barriers to entry for its line of business and tends to pay out more to its auditors.
A caveat to the result is that our sample also indicated profitability as having a negative relation to the probability of IFRS adoption. However the result on profitability cannot be entirely trusted due to the fact that the data variable for profitability in our sample was purposefully winsorized. The result I obtained from the data regarding the capital structure and group status of a firm were inconclusive, in that they may or may not have an effect on the IFRS adoption decision of a firm.

This study affirms some of the outcomes regarding IFRS adoption among private firms, especially in the context of UK private firms, that were found in previous studies and also conflicts with some other outcomes. The mix of results found in this study within the framework of studying private firms indicates that although there are firm-specific characteristics that increase the likelihood of a private firm adopting IFRS, it is still yet another question what benefits they may realize from such an adoption. We have shed some light on perhaps some of the circumstances under which private firms are more likely to adopt IFRS.

A caveat to this research is also that the sample data we relied on was for a period between 2005 till 2012 and I took the averages over time for the variables employed in the model. Thus it was difficult to make an assessment of whether that the firm-specific characteristic was present in pre-IFRS adoption and hence therefore be presumed to be a stimulant for IFRS adoption or whether it existed in post-IFRS adoption in which case it would be deemed as an effect of IFRS adoption. To address that problem I removed firm observations in periods after which they had adopted IFRS from the dataset. Thus the dataset would contain information on independent variables as if they were determining factors of the IFRS decision.

The gist of our data analysis showed that private firms in the UK have a certain IFRS adoptability profile and that comprises of firms that are less internationally oriented, larger in size, have lower profitability, greater capital intensity and pay more in auditor’s remuneration. However the characteristic link between profitability and IFRS adoption is unclear due to the winsorizing of our variable on profitability.

In the end there is also the possibility as was discussed before (Christensen 2012) that the study reads too much into the data and that this study overestimates the circumstances of IFRS
adoption. Given that our sample contained such few IFRS adopters and that the raw data that I started with contained an even lesser proportion of IFRS adopters indicates that the IFRS adoption phenomenon, at least among private firms, is too small and negligent to be meaningful. On the other hand we can also confirm certain firm attributes that would make IFRS adoption more likely for a private firm in the UK.
6. Appendix A

Figure 1. Average Size Histogram

Figure 2. Average Leverage Histogram, Winsorized by 2%
Figure 3. Average Profitability Histogram, Winsorized by 2%

Figure 4. Average Capital Intensity Histogram
Figure 5. Average Auditor’s Remuneration Histogram

Notes Figures 1-5: Figures 1 through 5 present density distributions for the non-binary independent variables that are employed in the model. We can already see from the distributions of the two winsorized variables, mean leverage and mean profitability, that there are certain extreme values present in their distributions despite even winsorizing them. The vast deviations in the distributions of the discrete/continuous variables to be used in the model are quite easily discernible from the figures presented above.
References


Reference for Regulatory Demand: