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Deferred tax as an indicator of earnings management

Bachelor thesis

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Bibliographic note

Abstract

This thesis investigates relationships between deferred taxes and possible earnings management in publicly traded companies on London Stock Exchange in FTSE 350 in the last several years. It also discusses other possibilities of earnings management, mostly by accruals. It builds on a model introduced by (Phillips J. D., Pincus, Rego, & Wan, 2004), which is a "probit" econometric maximum-likelihood estimation model and I supplemented it by simple OLS pooled cross-sectional regression. The results suggest there might be no relation of net deferred tax liabilities on earnings management to avoid a decline in earnings, and possibly some relation, although inconclusive, of deferred tax expense on earnings management.

Abstrakt

Tato práce studuje vztahy mezi reportovanou odloženou daní a možnou účetní manipulací zisků ve veřejně obchodovaných firmách na Londýnské Burze v indexu FTSE 350 v několika posledních letech. Také se dívá na další možnosti účetní manipulace, například přes položky časového rozlišení. Je založena na modelu představeném ve studii od (Phillips J. D., Pincus, Rego, & Wan, 2004), což je ekonometrický „probit" model založený na metodě maximální věrohodnosti a je mnou podpořen standardním OLS průřezovým modelem regrese. Výsledky regrese nepoukazují na to, že by mezi čistými odloženými daňovými závazky a účetní manipulace zisků byl nějaký vztah. Je možné, že je teoreticky (ačkoliv skoro neprokázaný) vztah mezi účetní manipulací a odloženým daňovým nákladem na výkazu zisku a ztráty.

Klíčová slova

Účetní manipulace zisků, odložená daň, probit model, OLS model

Keywords

Earnings management, deferred tax, probit modelling, OLS modelling

Range of thesis: Approximately 46 000 characters.

Declaration of Authorship

1. The author hereby declares that he compiled this thesis independently, using only the listed resources and literature.

2. The author hereby declares that all the sources and literature used have been properly cited.

3. The author hereby declares that the thesis has not been used to obtain a different or the same degree.

Prague 27th of July 2021 **Matěj Mišoň**

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I would like to wholeheartedly thank my supervisor Jiří Novák for having patience with me and helping me throughout the process of writing.

I would also like to thank my mother for being supportive and letting me do my work, even though it took a very long time.

Research question and motivation

The most important question of this thesis will be if and how much deferred tax influences earnings management in the Czech Republic in the years 2016 – 2018.

Deferred tax is one of the most difficult basic accounting concepts. Along with timing differentiations it can be used to transfer items from balance sheet to income statement and therefore change the net income in a certain fiscal year. However, it not heavily regulated and might easily be a tool for a firm, which needs to hide a loss or overstate profit.

Several studies and papers have already discussed the topic of deferred tax, and most of them in relation to earnings management. (Holland & Jackson, 2004) tested whether there is a connection of firms' specifics and its deferred taxation. (Bauman, Bauman, & Halsey, 2001) tried to find out if allowances determine earnings management. A few others (Phillips J. D., Pincus, Rego, & Wan, 2004), (Phillips, Pincus, & Rego, 2003) and (Wang, Butterfield, & Campbell, 2016), were discussing in a similar way if deferred tax assets and liabilities have any effect on earnings management. Each one in a slightly different way and with different datasets. (Bergstresser & Philippon, 2003) combined some previous studies and gave a broad work on earnings management in general, deferred tax being one of the items, but using several different inputs altogether.

In the thesis, I would like to find out if there is indeed a causality between deferred taxes and earnings management and if so, how large. I also believe it would be interesting to see, what is the difference between large and small firms in this manner, or even different industries. And it might be intriguing to compare those results with others from different part of the world using already undergone studies (for example from a study of (Wang, Butterfield, & Campbell, 2016)in China – it is the most relevant in terms of date).

Contribution

Several existing studies have already dealt with similar topics in the past. One study suggested (Wang, Butterfield, & Campbell, 2016), that there is a significant correlation between manipulating by deferred tax and by changes in working capital in China. Another study (Phillips, Pincus, & Rego, 2003) found out evidence that firms are likely to use deferred tax management to avoid a loss, instead of increasing profit. This particular study worked with US market.

Of course, nobody yet attempted to perform this kind of research in the Czech Republic – and for recent years. The models would need to be reformulated in order to fit the local law and accounting standards – as firms can choose which standard they will use. Also, the tax laws differ as well. The intended result is to find out if and which firms manipulate accounting using deferred taxes and based on the results, it might be useful for determining if a certain firm have the incentive to manipulate or it would be interesting to see if the behaviour of firms in the Czech Republic is consistent with those around the world.

Methodology

I intend to acquire relevant data from annual reports of firms as available on the website of Ministry of Justice of Czech Republic for the last 2-3 years.
I'll use the OLS regression similarly to (Wang, Butterfield, & Campbell, 2016), but with more explanatory variables/ indicators. Also, to avoid potential heteroskedasticity of data, I'll split the sample into more parts based on their size and possibly industry in which they operate and run the regression on those parts separately. (Due to my belief that larger firms can afford better managers and thus can move important accounting items more efficiently). Then I'll compare the results between groups to see if there are any interesting conclusions.

Outline

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Introduction

This study will mainly focus on detecting earnings management and its possible relationship with financial statements' items. The main focus will be specifically on deferred tax items, which I will define later on. I will also try to explain the possible models used to estimate such a relationship. Earnings management is usually defined as a sum of techniques of producing financial statements the goal of which is to show the firm's performance in a particular way[1]. This means the companies can have incentives to change the numbers in their books. This can be done to an extent legally, as the accounting framework is quite loose. It is usually done to encourage investors to view the company in a favourable light. One of these practices can be to avoid a loss – the company would like to be in black numbers all the time and should they incur a loss, it should be only once every few years, but the loss will be high. This can be achieved in many different ways, one of the proposed is to do this by changing accruals to influence expenses and therefore profit (Dechow, Sloan, & Sweeney, 1995). I would like to investigate, whether this can be done by changing the deferred taxes to influence expenses.

The next item to explain is deferred taxation. It is generally defined as financial accounting tool recording the difference from income tax paid and asset carrying value. In the long run, these differences will by definition equalise, as the tax will be eventually due in later periods.[2] In simpler terms, in the financial accounting system, there usually is a system for periodically recognising expenses (in IFRS at least) which lets you work out a schedule, along which you recognise expenses of a fixed or current asset as a part of their value (i.e. depreciation or write-offs). This schedule should reflect the continuing values of assets as closely as possible. Separate from this is tax accounting, which records what is a firm due to the government. However to avoid tax evasion and ensure stable income into country budget, governments enact laws to set the depreciation, write-offs and internal value changes, to a fixed value or put it very strictly into a set of buckets, dependent on a type of asset. This creates a discrepancy in expenses and therefore in taxable income and taxes due. Taxes due do not correspond in tax and financial accounting. And the difference between taxes actually paid in tax accounting and the ideal taxes due in financial accounting has to be reported in financial accounting. It is recorded as a deferred tax asset, if taxes are overpaid and deferred tax liability, if they are underpaid. Deferred tax expense is a current portion of deferred tax incurred in a fiscal year recorded in the income statement. Deferred taxes are one of the book-tax differences, which record discrepancies between tax accounting items and financial accounting items. From the ongoing principle of accounting, both tax and financial accounting must be equal in the long run, therefore the deferred tax is equal to zero.

This study is organised in a following way: Firstly, I introduced important terms, what do they mean and how they relate to the research I will be conducting. In the next section, I will review already existing literature and connect my research with the one which was made to this moment. Next, I will discuss my hypotheses and methodology of the experiment, as well as describing the models used and variables necessary for the estimation. Following this, there will be a summary of data collection, data sampling

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[1] Source - Investopedia
[2] Source - Investopedia

and necessary data preparation to be usable in the estimation. Next chapter will be dedicated to the results and their explanation and analysis of the data. Lastly, I will conclude the study with the summary of the results and methodology. Also I will discuss some limitations of the models, data and the overall research.

On the topic of 'Earnings management' there exists some prior research which this study will take as one of its sources. In research, the common detection method of managing earnings is through discretionary accruals. One of the studies proposes several methods of computation of total accruals (Dechow, Sloan, & Sweeney, 1995). Others argue firms manage their earnings in order to avoid either reporting a loss, reporting a decline in earnings, or failing to fulfil the forecast of earnings (Phillips, Pincus, & Rego, 2003). There have also been a number of studies which try to link deferred taxation as a potential indicator of earnings management, more of which will be introduced later in this work.

1. Existing literature review

A review of existing academic literature shows there has been a decent amount of papers and studies regarding the topics of earnings management, deferred taxation and their relationships and other book-tax differences. There is an extensive research in the topic of accrual measurement and again their indicator function of earnings management.

(Phillips, Pincus, & Rego, 2003) argues in their research that a usage of deferred tax expense is useful in determining the level of earnings management. It even shows it can be more accurate than the standard accrual measures. The other paper from (Phillips J. D., Pincus, Rego, & Wan, 2004) focuses more on the Balance sheet side of Deferred taxes. It concludes there might be no incremental usefulness in Deferred tax Assets and Liabilities compared to standard accrual measures in detecting an earnings decline. On the other hand, they argue the decomposed components of net Deferred tax Liability are useful in explaining of earnings management itself.

(Blaylock, Shevlin, & Wilson, 2012) examines book-tax differences and their impact on earnings and accruals persistence. They find significant disparity between book-tax differences arising from earnings management and from tax avoidance or other characteristics. However, they fail to answer how the book-tax differences relate to quality of earnings.

(Jackson, 2015) builds his research upon (Blaylock, Shevlin, & Wilson, 2012) and develops the effect of earning management on book-tax differences. Additionally, he focuses more on permanent book-tax differences, of which the deferred tax is not a part of, therefore in not largely significant to the topic of this thesis.

(Purnamasari, Hadi, & Sukmawati, 2020) shows a significant relationship between deferred tax expense and earnings management to avoid losses on data from Indonesia.

(Wang, Butterfield, & Campbell, 2016) searches for a different measure of earnings management using deferred tax and finds a significant correlation between traditional approach and his approach while arguing his approach can be more easily applied in real life.

(Bergstresser & Philippon, 2003) concludes with CEO's using earnings management via affecting the discretionary accruals, if said CEO has an incentive (i.e. financial or other benefits) to do so – resulting in reporting higher profits for the firm.

(Holland & Jackson, 2004) finds evidence of a significant difference in deferred tax provisions for firms in years 1991 and 1992. It prospects the economic view of earnings management saying it is a welfare loss. It also suggests evidence of over and under provisions for deferred taxes and effective tax rates.

In (Bauman, Bauman, & Halsey, 2001), there is a research into deferred tax asset valuation and its impact on earnings management. It finds inadequacies in companies'

financial statement disclosures and. Secondly, it argues that effective tax rate is the best measure of valuation allowance changes and presents evidence of a difference between this and valuation allowance account. Lastly, it does not find evidence of use of deferred tax assets to manage earnings.

(Dunbar, Phillips, & Rego, 2005) discusses whether deferred tax expense is indicative of earnings management, when the book-tax differences are created on the tax side and is irrelevant to a book side. It tests it with a bonus period with heightened depreciations and capital expenditures which result in higher deferred tax expense. It concludes with the resolution that this bonus period weakens the deferred tax' ability to detect earnings management. Also it states the result might be important for investors who use deferred taxes to asses earnings quality.

(Liu, Yuen, Yao, & Chan, 2014) main research purpose is comparing earnings management methods in IFRS and US GAAP. Among their results is the usage of the deferred tax expense and discretionary accruals. It finds the discretionary accruals are used to smooth income in both systems equally, whereas the deferred tax expense does not explain anything in this particular case. However, it finds other differences between US GAAP and IFRS reporting systems.

(Kang & Sivaramakrishnan, 1995)'s approach is very theoretical and mathematical regarding accruals and their usage in determining earnings management and presents several complex models in how to do so.

(Visvanathan, 1998) studies whether changes in valuation allowances are consistent with earnings management. The evidence found is not conclusive in whether is this the case or not. The serious limitation of this study is not enough data for the estimation itself.

(Schrand & Wong, 2003) argues that under IFRS firms can set arbitrarily high valuation allowances for deferred tax assets. It focuses on the data on banks and finds that the banks do follow the law and do not use these allowances to manage their earnings. However, this result only pertains to the one specific industry, which is banks, specific to the guideline of SFAS No. 109.

(Kasipillai & Mahenthiran, 2013) looks into Malaysian data and their publicly listed companies from 2005 to 2008 and estimates whether these firms use net deferred tax liabilities to manage earnings. Moreover, the next focus is the impact of corporate structure and governance to the deferred tax usage of earnings management. The result is somewhat surprising, as they find net deferred tax liability significant in detecting earnings management contrary to the most research done so far. It also finds that corporate governance makes a difference in this way.

(Noor, Mastuki, & Aziz, 2007) investigate the relationship between deferred tax expense in avoiding a loss – something this thesis will also do – again in Malaysia in 2001 to 2003. It uses Healy and modified Jones model to estimate the non-discretionary accruals. In accordance with other researches, it finds significance of deferred tax expense on earnings management to avoid a loss.

2. Methodology and hypotheses

Important issue which needs to be discussed is centred around accruals. Specifically the difference and relationship between discretionary and non-discretionary accruals. This issue is thoroughly and deeply explained in (Dechow, Sloan, & Sweeney, 1995) as well as several models of estimations of the non-discretionary accruals and I will try to paraphrase their theory and findings.

Firstly, let's define the non-discretionary accruals. According to a standard definition, they are the "normal" or "standard" accruals needed to day-to-day operation of the company, such as invoices, supplies, goods etc. These can be estimated (see next models) and to an extent identified. On the other hand there are discretionary accruals which, as their name suggests, are created and maintained at a discretion. They are the "excess" accruals which can be manipulated with for example to achieve greater profit. These cannot be estimated and they are hard to see. Usually, we can estimate them indirectly through the non-discretionary part of the total accruals. The sum of discretionary and non-discretionary parts total to Total Accruals, which can be computed from the company financial statements. The common definition being $\sum Acc = (\Delta CurrAs - \Delta Cash) - (\Delta CurrLi - \Delta STDebt) - Dep$.

Next, I'll summarise (Dechow, Sloan, & Sweeney, 1995)'s list of models and decide which one to use:

The Healy Model (1985):
It is defined as $NDA_\tau = \frac{\sum_t TA_t}{T}$, which is the sum of all total accruals of all years divided by the number of years in the estimation period. It is the average of all accruals in the estimated period where we assume no earnings management to find non-discretionary accruals for the period where we expect earnings management (usually the year T+1). The motivation behind this model is that firms decide to manage their earnings on a short notice and did not practice earnings management prior to this year – therefore all of its previous accruals in the years prior are all non-discretionary – only in the target year they have discretionary part.

The DeAngelo Model (1986):
It is defined as $NDA_\tau = TA_{\tau-1}$, this means the target year non-discretionary accruals are equal to previous year total accruals. Same as the Healy model, it assumes constant non-discretionary accruals over time. It essentially is a special case of the Healy model with the T sequence with only one year. The motivation to use this model is the same as with the Healy model.

The Jones Model (1991):
It is defines as $NDA_\tau = \alpha_1 \left(\frac{1}{A_{\tau-1}}\right) + \alpha_2(\Delta REV_\tau) + \alpha_3(PPE_\tau)$, where the alphas are the a parameters derived from the following OLS regression: $TA_t = a_1 \left(\frac{1}{A_{t-1}}\right) + a_2(\Delta REV_t) + a_3(PPE_t) + v_t$. The variable A is total assets, ΔREV is difference of total revenues from t-1 to t. And PPE is the level of property plant and equipment in the

event year, scaled by total assets. According to (Dechow, Sloan, & Sweeney, 1995), Jones stated this model explains up to one quarter of variation of total accruals. The main drawback of the model is the OLS must be estimated for each company separately, as the coefficients are firm specific.

The Modified Jones Model:

This is a modification of the Jones model defined as $NDA_\tau = \alpha_1 \left(\frac{1}{A_{\tau-1}}\right) + \alpha_2(\Delta REV_\tau - \Delta REC_\tau) + \alpha_3(PPE_\tau)$, where ΔREC is the difference of net receivables scaled by total assets. The change means, according to (Dechow, Sloan, & Sweeney, 1995) "that all changes in credit sales in credit sales in the event period result from earnings management", whereas the simple Jones model did not assume this. The change was made as it might be easier to conceal suspicious transactions on credit sales rather than cash sales.

The Industry Model:

It is defined as $NDA_\tau = \gamma_1 + \gamma_2 median_I(TA_\tau)$. This is an OLS estimation of all firms that fall into a certain industry section. Take the median value of total accruals in a certain industry and regress it over the values in the estimation period. This assumes same level of non-discretionary accruals over an industry and it may remove some correlations in accrual between firms in the same industry.

In this thesis I will use the DeAngelo model to estimate non-discretionary and therefore discretionary accruals. The main reason for this is I do not posses enough data to estimate any other model. I also find this model very easy to use and easy to estimate the accruals. There are, however, limitations to this model – especially the assumption of constant non-discretionary accruals. The best model to use is definitely the modified Jones model as it is the most refined and robust, but it is difficult to calculate as another regression is necessary. In this thesis the accruals are not the main point of interest, so therefore I believe I can get away with using the DeAngelo model.

H1: Net deferred tax liabilities are incrementally indicative of earnings management in the case of temporarily avoiding losses.

H2: Deferred tax expenses are incrementally indicative of earnings management in the case of temporarily avoiding losses.

The motivation behind the research questions is very simple. From previous research, there is evidence accruals are a useful tool when managing earnings. This has led to widespread knowledge of this phenomenon and investors started to look for this in their research of where to invest their money. Many companies wanted to look for a way how to subtly change their financial result to their favour without anyone noticing. This leaves the door open for other unconventional possibilities, like deferred taxes – especially for companies with high level of fixed assets and maybe low level of working capital. Most of the deferred tax items usually consist of changes in tax and accounting depreciation and amortisation of fixed tangible and intangible assets. It is therefore curious to think what these companies would do to manage their earnings. To use

deferred tax is definitely a possibility, so this study would like to investigate whether it is indeed used for such a purpose or not the same way other research confirmed the accruals to be. This earnings manipulation can only work in a short period of times (only several years at the time), as in the long run the deferred tax converges to zero and it would be impossible to do it this way. But earnings management is usually done for specific events to please investors or the board of governors, so this is not much of a problem.

The main model will be estimated using probit regression from pooled, cross-sectional data to show whether deferred tax items are useful in detection of temporary book-tax differences. The model is based on (Phillips J. D., Pincus, Rego, & Wan, 2004) research and is as follows:

$$EM_{it} = \beta_0 + \beta_1 \Delta NDTL_{it} + \beta_2 DAC_{it} + \beta_3 \Delta CFO_{it} + \beta_4 NS_{it} + \epsilon_{it}$$

where:

EM = Earnings management parameter
ΔNDTL = The change of net deferred tax liability, calculated from years t-1 and t as deferred tax liabilities less deferred tax assets, scaled by total assets at t-1
DAC = Discretionary accruals at t, scaled by total assets at t-1
ΔCFO = The change of cash flow from operation from years t-1 and t, scaled by total assets at t-1
NS = Net sales

The next model will use change in deferred tax expense instead of liabilities to possibly further support the thesis' claim. The second model is as follows:

$$EM_{it} = \beta_0 + \beta_1 DTE_{it} + \beta_2 DAC_{it} + \beta_3 \Delta CFO_{it} + \beta_4 NS_{it} + \epsilon_{it}$$

where:

ΔDTE = The change of deferred tax expense from year t-1 to t scaled by total assets at t-1
Other variables same as in model 1.

In the supplementary 3rd model, both deferred variables will be used together to test whether there is a cross-sectional dependence on these variables; sample correlation coefficient is around **30%**. This model is defined as:

$$EM_{it} = \beta_0 + \beta_1 \Delta NDTL_{it} + \beta_2 \Delta DTE_{it} + \beta_3 DAC_{it} + \beta_4 \Delta CFO_{it} + \beta_5 NS_{it} + \epsilon_{it}$$

The models are inspired by (Phillips J. D., Pincus, Rego, & Wan, 2004)'s models as they are mostly comprehensive to perform. As previously discussed, the discretionary accruals will be estimated using the DeAngelo Model, as it is the easiest one and using another model will be much more difficult and unnecessary and the data is not available to use it.

In the last model, I will test whether there is a difference in the model usage by using the equation from the model 3 and running it through the standard pooled OLS regression. In this difference in approaches, slight changes in results may occur.

$$EM_{it} = \beta_0 + \beta_1 \Delta NDTL_{it} + \beta_2 \Delta DTE_{it} + \beta_3 DAC_{it} + \beta_4 \Delta CFO_{it} + \beta_5 NS_{it} + \epsilon_{it}$$

Now, I will thoroughly explain all the variables present in the model, how they are computed and what they mean to the overall model and hypotheses testing:

EM is a earnings management variable, it is a binary 0 or 1 variable. The motivation and meaning behind this variable is that companies are generally afraid to incur a loss, so they would like to report a profit. They can resort to earnings management to do so. We should be suspicious of very low profits as it may signify the usage of earnings management. This is based on an observation described in (Phillips 2004). There is therefore higher probability of a firm performing earnings management, when its net income is very low, but positive. On the other hand, when you have a small loss, you are probably not performing an earnings management scheme, so we can be reasonably sure the probability of earnings management is lower in small losses. In large losses, this does not work, as it is very difficult to manage earnings from a large loss to a profit and yet keep it legal. The variable itself is defined as Net Income normalised by Total Equity. When this ratio is small enough, we can assume the firm is more likely to commit earnings management. The reasonable interval is 0 to 0.01. The interval for reasonable likelihood of non-earnings management is to be set between 0 and -0.03 Other firms are inconclusive whether they manage earnings and therefore will be N/A and will not enter the regression. From the very nature of covertness of nefarious financial activities this measure is not exact and I am very aware of this. However, it may serve as a sufficient proxy for it, as there is no exact measure possible, unless we want to select specific companies, which have been actually convicted for this activity. Moreover, by this we cannot be sure of keeping random sampling and thus having reliable results.

ΔNDTL is the difference between net deferred tax liabilities from t to t-1. Net deferred tax liability is the difference between deferred tax liabilities and deferred tax assets. These assets and liabilities were defined earlier and are scaled by Total Assets.

DTE is deferred tax expense in a certain year. It is a flow variable, scaled by Total Assets. It is a part of the income statement – being a current portion of total deferred taxes.

DAC are the discretionary accruals, which have been described earlier in this section. Discretionary accruals are what is left from total accruals after subtracting non-discretionary accruals. As previously discussed, the non-discretionary accruals are estimated using the DeAngelo model for the simplicity and ease to use. Total accruals are calculated from all sorts of current balance sheet items, specifically the changes between t and t-1 of current assets less cash less current liabilities plus short term debt less depreciation. All scaled by lagged Total Assets. This is the standard way how to do it based on the indirect calculation of cash flow in accounting. Accruals are very important to the model, as previous research (Dechow, Sloan, & Sweeney, 1995) shows they are often used to manage earnings, therefore they need to be controlled for to avoid

omitted variable bias with only incremental indication of deferred taxes on top of the accruals.

ΔCFO is a control variable in this model, representing cash flow from continuing operations. It is calculated by EBIT – total accruals (as is the conventional definition). The usage of CFO in this model is important to control for the effect of changes in cash flows from operations have on the level of the EM variable.

NS are Net Sales made in the current year, I added this variable on top of the (Phillips J. D., Pincus, Rego, & Wan, 2004) model to reflect company size in the model – it is a nice proxy for company size.

3. Data collection and preparation

The goal of the thesis is to investigate whether deferred tax is an sufficient indicator of earnings management. The data used for this research will be from British firms, which are publicly traded at the London Stock Exchange. The firms used will be the largest, most prestigious ones from the main index of FTSE 350. To ensure the econometric estimation is sufficient, the more data is used, the better, all 350 firms of the index will be used. The range of the data collected will be from 2016 to 2019, as the past data availability is uncertain and the companies included in the index may change from time to time. Data from 2020 will not be used, as at the time of research not all firms have disclosed 2020 financial statements. The FTSE 350 firms are considered, as they are big enough to try to sway investors to a certain path by possible earnings management. They are also established firms with global influence so it might be interesting to evaluate their performance and do a research regarding these companies. The data was downloaded using the Thompson-Reuters Eikon database, which include all sorts of data including financial statements from all publicly traded companies all over the world.

The dataset could be classified as a pooled cross-sectional one containing a total of 1373 observations (firm-years) from 350 unique firms over the four year period I decided to use. From the data, there will be used the year-on-year differences for most balance sheet variables all of them being scaled by total assets to normalise the values.

Inspecting the data, not all of the companies use the deferred tax items – there may be many reasons for this, mostly by not having certain assets which generate large deferred taxes, such as Fixed assets or allowances for doubtful accounts, which are treated differently for purposes of tax accounting.

The data was subsequently prepared to be used in the regression according to the way, which is detailed in methodology. Most of the variables were scaled by total assets, deferred taxes assets were subtracted from deferred tax liabilities to create net deferred tax liabilities. Accruals were computed according to the DeAngelo model with non-discretionary accruals at time t are equal to total accruals at t-1. Total accruals are computed according to the definition from current assets and current liabilities. Cash Flow from Operations was calculated as EBIT less Accruals. All stock variables were differenced to create year-on-year changes to compare changes, usually scaled by lagged total assets.

The most important variable to calculate was the EM binary variable. It was calculated as described in methodology by scaling Net Income by Equity and set as 1 when the company reported unusually small profit having the ratio between 0 and 0.01 and the EM variable is 0 when the income ratio is between 0 and -0.03 to signify a quite small loss, where earnings management to avoid a loss is not suspected. Other values of income are discarded as N/As and will not be present in the regression. The number of firm-years satisfying these requirements is only 41, which is not ideal, but it will have to do in the regression itself.

4. Results and interpretation

The regression results from previously defined models are as follows:

Table 1:

	Estimate	Std. Error	z value	Pr(>|z|)	*
Intercept	-0.07107	0.4055	-0.175	0.861	
ΔNDTL	2.812	4.052	0.694	0.488	
DAC	4.225	4.670	0.905	0.366	
ΔCFO	2.530	4.832	0.524	0.601	
NS	2.157e-05	8.841e-05	0.244	0.807	

In Table 1, it is reported the result of the first regression model (probit with net deferred tax liabilities). The first two variables are the most important ones, both of them have positive coefficients (2.812 and 4.224), but they are however statistically insignificant with p-values (48,8% and 36,6% respectively). The first important variable is the deferred tax one, which shows there is no significance between deferred tax and earnings management. The second variable is discretionary accruals variable, which is controlling for possible omitted variable bias. On its own, it shows how changes in discretionary accruals may signify earnings management in itself. This result seems to contradict previous research, as that shows accruals are likely to be used to manage companies' earnings - for example (Dechow, Sloan, & Sweeney, 1995). Other variables are also insignificant, but they are only control variables which have no importance to the overall research.

Table 2:

	Estimate	Std. Error	z value	Pr(>|z|)	*
Intercept	-0.2846	0.4387	-0.649	0.5165	
DTE	137.6	76.72	1.793	0.0729	.
DAC	2.447	5.010	0.488	0.6252	
ΔCFO	-0.2158	4.997	-0.043	0.9655	
NS	1.080e-04	1.033e-04	1.045	0.2959	

In Table 2 are the results from the regression of Model 2, which is again a probit model. The estimate of deferred tax expense is slightly statistically significant with p-value of **7.2%.** This can be thoroughly discussed. In most cases, there is a 5% cut-off value considered the level at which it is decided whether the variable is significant or not. But sometimes the level of 10% is used as the cut-off value. In the same case, the (Phillips, Pincus, & Rego, 2003) study deemed to include their 5.5% p-value as significant while researching deferred tax expense and earnings management as my study is. This leads me to a conclusion that a difference in p-value less than 2% can be interpreted as a similar result that reflects the previous findings from(Phillips, Pincus, & Rego, 2003). It has a positive coefficient of 137.6, so it can somewhat be said that larger deferred tax expenses can point to earnings management in order to avoid a loss with higher probability. (Purnamasari, Hadi, & Sukmawati, 2020) and (Noor, Mastuki, & Aziz, 2007) arrived at the similar conclusion. The Accruals variable is again insignificant as in previous model, which again is contradictory to previous research,

but can be explained by using the DeAngelo model for non-discretionary accruals. (Dechow, Sloan, & Sweeney, 1995) It would be perhaps more beneficial to use different models, for example the modified Jones model, but in this case it would be immensely more difficult to calculate the modified Jones as it would require another few regressions with data I did not have. Also, to have significant result for Accruals is not the main hypothesis of this study, so it is not necessarily needed, it is only a control variable. Cash flow from operations and Net sales, which is a proxy for company size are again control variables, which hold no meaning, only to say that company size is not a factor in earnings management, which is to be expected, as the data contains only the biggest firms on British market.

Table 3:

	Estimate	Std. Error	z value	Pr(>|z|)	*
Intercept	-0.3196	0.4530	-0.705	0.481	
ΔNDTL	-2.263	5.215	-0.434	0.664	
DTE	156.8	95.56	1.640	0.101	
DAC	2.274	5.073	0.448	0.654	
ΔCFO	-0.8602	5.249	-0.164	0.870	
NS	1.107e-04	1.039e-04	1.065	0.287	

In Table 3, there is the result of supplementary third model, which shows the combined effect of both net deferred tax liability and deferred tax expense. The result is inconclusive (with p-values of 66.4% and 10.1% respectively) and somewhat confirms what has been established in the previous tables. The change in p-values is not so large, so there is only slight correlation and the models probably do not suffer from omitted variable bias by omitting either net deferred tax liabilities or deferred tax expenses. Other variables follow the same directions as in previous models, which is consistent.

Table 4:

	Estimate	Std. Error	z value	Pr(>|z|)	*
Intercept	0.3645	0.1720	2.118	0.0452	*
ΔNDTL	-0.7579	1.715	-0.442	0.6626	
DTE	52.54	29.93	1.756	0.0925	.
DAC	0.5464	1.890	0.289	0.7751	
ΔCFO	0.3737	2.024	-0.185	0.8552	
NS	4.152e-05	3.994e-05	1.039	0.3094	

In Table 4, we can see the estimates of the 4th regression using the standard OLS modelling with results of the first two variables representing the two hypotheses having p-values of 66.2% and 9.25% respectively. The R-squared of the OLS model can now be measured and it is **0.1719**, which is not very large, but I would say it is satisfactory. These results are very similar to the probit model, which uses completely different method of estimation, so it can be argued the model is somewhat robust in this manner. The deferred tax expense variable now exceeds the 10% p-value cut-off and may be considered significant in this model, which again supports the only small correlation between the two main independent variables.

In the hypotheses testing section it can be now concluded that from Model 1, the **H1** has been rejected for not enough evidence to the contrary. It can also be said for **H2**

that it has been confirmed to an extent, as it can be argued there is some evidence deferred tax expense can and might be used as an option for avoiding a loss in financial accounting on the British FTSE 350 data. I also ran other simple OLS models for each of Model 1 and Model 2, which I will not present here, but they produced similar results to the probit models (same as a difference between models 3 and 4), which can confirm both hypotheses yet again.

Conclusion and limitations

This study focused on determining whether the deferred tax items incrementally explain earnings management in firms. The model used was a similar one to the model used in (Phillips J. D., Pincus, Rego, & Wan, 2004) paper, which set out to confirm similar hypotheses to this study. I used data from the London Stock Exchange firms in the index FTSE 350, as this have never been tried before on European or British data. Since earnings management has a several different definitions and forms, the one used in this study is "avoiding a loss" earnings management signified by reporting a small profit instead of a small loss to appease the investors the firm is actually doing well and is not in red numbers. This methodology was also adapted from (Phillips J. D., Pincus, Rego, & Wan, 2004) study.

I had at my disposal 1373 firm-year observations as pooled cross-sectional data and used econometric models – specifically "probit" models to arrive to a conclusion that there is no overall significance of deferred tax on this type of earnings management, which is somewhat consistent with previous literature, at least on this type of test and this type of data. The only slightly significant value with p-value of approximately 7% is the impact of Deferred Tax Expense in the secondary model. This paper extends the current literature by analysing new sort of data which have not been analysed before and finds very similar results to previous studies on new data.

The results are somewhat consistent with the (Phillips J. D., Pincus, Rego, & Wan, 2004) paper – regarding net deferred tax liability, where they also show no incremental relation, and also with (Phillips, Pincus, & Rego, 2003) and (Purnamasari, Hadi, & Sukmawati, 2020)– regarding deferred tax expense on the income statement. Albeit they show high significance, whereas I show only slight to none significance. The same result is also reported by (Noor, Mastuki, & Aziz, 2007).

Among some of the limitations in this particular study are that is very difficult to detect earnings management altogether. Earnings management is due to its nature almost impossible to find. In all possible approaches one cannot know if a certain firm really managed its earnings unless they've been audited and convicted. This might be an idea for some future research, however it may create a biased sample, if one is not careful about picking the control observations in which earnings management is not present.

Another limitation of this study is possibly the discretionary and non-discretionary accruals. The De Angelo model (Dechow, Sloan, & Sweeney, 1995) used here can be attacked as insufficient and superficial, however, using the superior Jones model (Dechow, Sloan, & Sweeney, 1995) in this case would be difficult and immensely time-consuming with no guarantee of improved or statistically significant results. This might be an idea for a future research, to try to use Jones or modified Jones models to estimate the non-discretionary accruals in firms.

Other possible problem may arise in the data used. Firstly, I was trying to use the data from private companies in the Czech Republic, acquired from "MagnusWeb" database. After data gathering and data cleaning, I discovered that some companies do not disclose any financial documents whatsoever, which might indicate some nefarious

activities or just a pure laziness. Other factors of why this data was not very good for research was that most of Czech companies are probably not aware of these advanced accounting mechanics and should they decide to manage earnings, there are much easier and more straightforward ways to do so. This was supported by not many companies actually used deferred tax items in their disclosures and therefore there was not enough information to analyse in the models. It was then decided to use the British FTSE data instead, as Britain has a more formidable system of financial reporting and I could be reasonably certain to trust the data itself. However it is not without its limitations.

There are ways this study can be a starting point for a new research, some of them written in this conclusion.

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