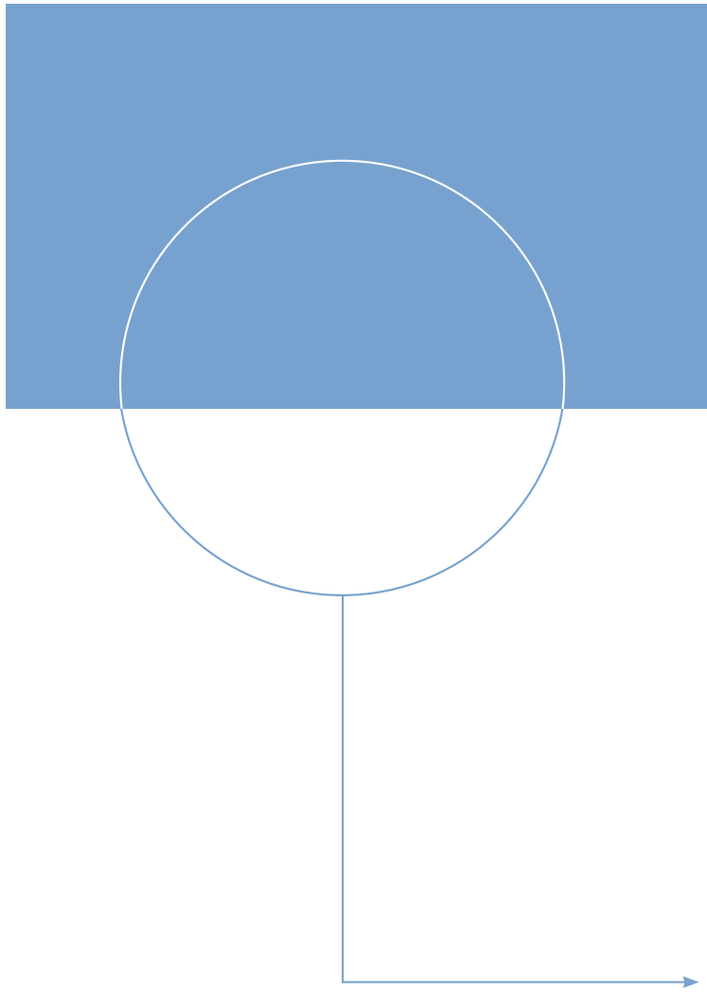

Master's thesis

2022

Håkon Bergseng Brannan , Christian Pjaaka

NTNU
Norwegian University of
Science and Technology
Faculty of Economics and Management
NTNU Business School

Håkon Bergseng Brannan
Christian Pjaaka

Earnings management in European real estate firms

May 2022

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Håkon Bergseng Brannan
Christian Pjaaka

Master in Economics and Business Administration
Submission date: May 2022
Supervisor: Are Oust
Co-supervisor: Ole Jakob Sønstebø

Norwegian University of Science and Technology
NTNU Business School

Preface

This paper symbolizes the completion of our master's degree in Economics and Business Administration at NTNU. The objective of our paper is to expand the knowledge in the earnings management literature, especially in the real estate sector.

We needed a theme to crossover between Finance (finansiering og investering) and Management accounting (økonomistyring). Earnings management was approved as a common theme for both specializations, and we found it interesting. After deciding on earnings management as a topic, we were never in doubt about which sector to examine. We have on several occasions over the last few years written assignments on real estate, so it felt natural to write about it in this paper as well.

Writing this paper has been a very valuable experience in many ways. We have learned a lot about the process of writing a scientific paper. It has both been fun and challenging, and we are tempted to do something similar again. Anyways we will take with us the experiences and knowledge gathered in this process further in life.

We would like to give a huge thank our supervisors Are Oust and Ole Jakob Sønstebø for exceptional guidance in the development of this paper. We would also like to give a thank to our study mates Argjenta and Tina for creating a good study environment through this semester. We will of course thank each other for a good partnership and friendship.

The views expressed in this paper are our own and are not necessarily shared by NTNU Business school.

Trondheim, May 24, 2022.

Håkon Bergseng Brannan

Christian Pjaaka

Abstract

This paper seeks to investigate earnings management in the real estate sector. More specifically, we look at the impact of crisis and manager change on earnings management. The data consists of real estate firms listed on several European stock exchanges. As a proxy for earnings management we use discretionary accruals, from four different models. These models are estimated using fixed effect regression analysis. The three crisis periods we examine are the financial crisis (2008-2009), the loan crisis (2011-2012) and the Covid pandemic (2020-2021). The results indicate income decreasing activities during the crisis periods. Regarding manager changes, two of the four models gives significant negative effects on discretionary accruals when there is a change in CEO. Our results indicate that manager change has a negative effect on discretionary accruals, but we do not find strong enough results to claim income decreasing activity. The contribution of this study is to further advance our understanding of how different macroeconomic events and firm specific factors affect earnings management.

Sammendrag

Denne studien undersøker earnings management i eiendomssektoren. Mer spesifikt ser vi på virkningen av krise- og lederendring på earnings management. Dataene består av eiendomsselskaper notert på flere europeiske børser. Vi benytter skjønnsmessige periodiseringer fra fire forskjellige modeller, som et mål på earnings management. Modellene estimeres ved bruk av fixed effect regresjonsanalyser. De tre kriseperiodene vi undersøker er finanskrisen (2008-2009), lånekrisen (2011-2012) og Covid-pandemien (2020-2021). Resultatene våre indikerer mer inntektsreduserende aktiviteter i kriseperiodene. Når det gjelder lederskifte, gir to av fire modeller signifikant negativ effekt på skjønnsmessige periodiseringer, ved skifte av CEO. Våre resultater indikerer at lederskifte har en negativ effekt på earnings management. Vi finner likevel ikke sterke nok resultater til å påstå mer earnings management. Bidraget til denne studien er å fremme vår forståelse av hvordan ulike makroøkonomiske hendelser og firmaspesifikke faktorer påvirker earnings management.

Table of contents

Figures vii
Tables vii
1. Introduction 1
2. Literature review 2
2.1 Income increasing and decreasing earnings management methods 3
2.2 Earnings management in crisis periods 4
2.3 Earnings management in the real estate sector 5
2.4 Hypotheses development 6
3. Data 7
3.1 Data and sample selection 7
3.2 Descriptive statistics 8
4. Empirical methods 10
4.1 Event period 10
4.2 Measurements of earnings management 10
5. Empirical results 13
6. Discussion and conclusion remarks 21
References 23
Appendix 27

Figures

Figure 1. *Number of manager changes on a yearly basis 2006-2021.* 10
Figur 2. *Mean discretional accruals trough the sample period 2006-2021.* 16
Figure A1. *Mean discretional accruals trough the sample period 2006-2021 (net value of PPE)* 34

Tables

Table 1. *Descriptive statistics on the most important variables.* 8
Table 2. *Descriptive statistics on composition of dataset.* 8
Table 3. *Correlation matrix.* 9
Table 4. *Fixed effects regression analysis with TA as dependent variable.* 14
Table 5. *T-test of discretionary accruals from each model.* 15
Table 6. *Fixed effect regression analysis with DA as dependent variable.* 17
Table 7. *Fixed effects regression analysis with DA≥0 as dependent variable.* 19
Table 8. *Fixed effects regression analysis with DA<0 as dependent variable.* 20
Table A1. *Definitions and explanations for all variables* 27
Table A2. *Data sample.* 28
Table A3. *Fixed effects regression analysis of model (1)-(4).* 28
Table A4. *Fixed effects regression analysis with DA as dependent variable (CRISIS and MC).* 29
Table A5. *Fixed effects regression analysis with DA≥0 as dependent variable (CRISIS and MC)* 30
Table A6. *Fixed effects regression analysis with DA<0 as dependent variable (CRISIS and MC).* ... 31
Table A7. *Hausman test.* 32
Table A8. *VIF.* 32
Table A9. *Fixed effects regression analysis with TA as dependent variable (net value of PPE).* 33
Table A10. *Sources used to find real estate firms .* 34

1. Introduction

In 2008, when the financial crisis occurred, large parts of the world experienced a huge decline in the economy, similar to when the Covid pandemic spread around the world in 2020. In periods of economic distress, the expectations tied to the company changes, and the importance of their reporting quality heightens. This leaves room for information asymmetry between the provider and the user of the financial reports, and opportunistic behavior can reduce the reporting quality (Arthur et al., 2015). In this paper we examine earnings management in the real estate sector. The aim is to achieve a deeper understanding on how crisis periods and manager changes affect earnings management. Matteo and Francesco (2018) point out the limited amount of earnings management research conducted on the real estate sector. To the best of our knowledge, there is no existing literature focusing on European real estate firms. Nguyen et al. (2018) found that the real estate sector in Vietnam was the sector with the highest score in earnings management involvement. Real estate firms are for the most part asset heavy, and these assets vary in value. This leaves room for some interpretation on the firm's part, which makes it a lucrative sector to examine for earnings management.

When developing our hypothesis, we assess the arguments made in the existing literature and theoretical foundations of earnings management. There are multiple studies that have found indications of more earnings management (Ahmad-Zaluki et al., 2011; Kjærland et al., 2021; Liu & Sun, 2022), but also less earnings management in periods of economic distress (Ali et al., 2022; Arthur et al., 2015; Filip & Raffournier, 2014). The fact that regulatory scrutiny and the importance of reporting quality heightens in crisis periods suggests that earnings management will be lower (Chia et al., 2007). There is also a notion that crisis periods give opportunities to engage in more earnings management because the investor tolerance increases during these periods (Ahmad-Zaluki et al., 2011). The question of whether periods of economic crisis lead to earnings management has good arguments and empirical results on both sides. We operate from the notion that there are less earnings management in crisis periods.

The management of the firm is responsible for decisions and is therefore a key suspect when researching earnings management. Nieken and Sliwka (2015) researched the effect of managerial changes on earnings management. They argued that both the outgoing manager and the new arrival has incentives to manage earnings, to benefit their long-term reputation. They found evidence that outgoing managers shifts earnings forward to their last period in charge of

the firm. Incoming managers would, on the other hand, have incentives to perform a big bath strategy in their first period in office (Nieken & Sliwka, 2015).

Our contribution is to further extend the knowledge of earnings management, especially in the real estate sector. This paper is the first to focus exclusively on European real estate firms, which entails that the knowledge gained from this study will be unique. We look closer at the impact crisis and management change have on earnings management. Our analysis consists of four models to estimate discretionary accruals, which we use as a proxy for earnings management. We use a fixed firm effects regression analysis to estimate the discretionary accruals. Our dataset consists of 278 real estate firms and 2028 firm year observations, organized as a panel dataset. The countries we include in the study are England, Germany, France, Netherlands, Belgium, Sweden, Denmark, Norway, Finland and Iceland. We gather financial reports and press releases regarding manager change from Eikon DataStream in the period 2005 to 2021. We only include real estate firms publicly listed on the main stock exchange for the mentioned countries. We find that there is income decreasing activities during crisis periods. This indicates a use of a big bath strategy. Our results on manager changes are somewhat weaker, and we can't conclude that manager change contribute to more earnings management.

This paper further consists of six parts. Section 2 is the literature review. Section 3 is data and descriptive statistics. Section 4 is the methodology. Section 5 is our analysis and results. Section 6 is the discussion and our conclusion remarks.

2. Literature review

A financial reporting system that allows for discretionary reporting will give firms the ability to manipulate their earnings. A reporting standard like the one used in Europe today, IFRS (International Financial Reporting Standards), provides flexibility for accounting choices. In 2005, IFRS was chosen to be the mandatory reporting standard for listed companies in the EU. Although not a member, Norway and Iceland has special agreements with the EU and uses IFRS as its reporting standard. England departed from EU after 2020, but all public firms are still using IFRS, with some limited modifications (IFRS, 2021).

Because of the flexibility in the reporting standards that comes with IFRS, European countries have been a popular region to conduct research for earnings management. Healy and Wahlen (1999) give the following definition for earnings management:

"Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers." (Healy & Wahlen, 1999, p. 368).

2.1 Income increasing and decreasing earnings management methods

There are multiple ways to conduct earnings management. Two known methods are income smoothing and the big bath strategy. Smoothing of reported earnings is described by Beidleman (1973) as a strategy to reduce fluctuations of what is considered to be the firm's normal level. This is the preferred method if the objective is to eliminate abnormal variation in the firm's results. Income smoothing is possible to achieve for managers through the use of accruals and cash flows (Mendes et al., 2012). However, it is most logical for managers to rely on accrual accounting to practice income smoothing because of the extra cost and increase in visibility connected to the cash flow method (Mendes et al., 2012; Peasnell et al., 2000). The management can use accounting discretion to accelerate future revenues, or they can delay the reporting of costs. The typical incentives for earnings smoothing can be to hide poor performances in revenues or to create reserves for the future by underreporting good financial performances (Leuz et al., 2003). This might result in tax advantages and improved relations to creditors, employees and investors (Hepworth, 1953). Beidleman (1973) highlighted the fact that income smoothing can reduce the systematic risk connected to the security, and therefore increase the price.

The big bath strategy involves reducing the firm's yearly financial results to an artificially low level, just to be able to rebound the subsequent year (Nieken & Sliwka, 2015). Discretionary items can be used to achieve both artificially bad and good results. Years when expected results is not within reach, typical for crisis periods, gives incentives to manage earnings with a big bath approach. With this approach, the firm takes advantage of the uncertain environment. Kirschenheiter and Melumad (2002) described the approach as underreporting earnings by the maximum amount possible in the current period, to report abnormal high earnings in the following period. The incentive becomes even stronger if the management is new – in this case the new management can blame the old management team for the bad results (Nieken & Sliwka, 2015).

2.2 Earnings management in crisis periods

Prior studies have examined how macroeconomic conditions have affected earnings management. There have been several studies on the financial crisis and other periods with high economic distress. The results of these studies are inconsistent. While some find that periods of economic distress increased the degree of earnings management, others have found the opposite. Therefore, the effect that periods of economic distress have on earnings management is not completely clear.

There are several arguments for an increase in earnings management within periods of crisis. Fields et al. (2001) presented three categories of motivations for different accounting choices: contractual arrangement, assets pricing and influencing external parties. These included compensation contracts to managers who depend on the firm's goal achievement, a reduction in taxes, attempts to meet the analysts forecast, to avoid a decrease in the stock price and to influence third parties. Dechow et al. (2010) also listed debt contracts, litigations risk, proprietary costs, or incentives to influence the stock price as reasons for accounting choices.

An argument for increased earnings management in crisis periods is that the company's earnings will be lower in such periods compared to normal periods. Ahmad-Zaluki et al. (2011) found that Malaysian IPOs had a higher level of income-increasing earnings management during the Asian financial crisis in 1997 and 1998. They also found that environmental and company specific factors had a significant relation to earnings management.

The arguments stated above gives an indication for earnings management in crisis periods. But as previously stated, there are differing conclusions in the literature. There are also compelling arguments and evidence for less earnings management and increased accrual quality in crisis periods. Firstly, under a financial crisis, actors such as auditors will be on high alert, which can lead to increased monitoring and difficulty for the firm to engage in earnings management (Chia et al., 2007). The incentive for auditors to tighten their monitoring is quite clear. Auditors will face a larger risk of litigation under times of financial distress because of the increased risk of client bankruptcy (Arthur et al., 2015). There is also evidence for more conservative reporting by clients of the Big 4 firms in the aftermath of the Enron scandal (Krishnan, 2003).

Investor relations is important in a crisis environment, and this gives managers an incentive to provide financial information of high quality and reliability (Arthur et al., 2015). There is also an argument to be made for higher tolerance among investors in a crisis environment (Ahmad-Zaluki et al., 2011). In these periods, low earnings performance is to be expected for many firms

(Filip & Raffournier, 2014). With a higher tolerance among investors, the firm's incentive for income increasing activities will be lower (Türegün, 2020). However, it can strengthen the incentive for income decreasing activities, i.e., a big bath approach.

Evidence from European firms during the financial crisis in 2008-2009 indicate that earnings management decreased during the crisis period (Arthur et al., 2015; Filip & Raffournier, 2014). The evidence from the Asian financial crisis (1997-1998), as previously discussed, shows higher level of income-increasing earnings management during the crisis years (Ahmad-Zaluki et al., 2011). In a study on Norwegian publicly traded oil companies during the big oil price fall in 2014, more income decreasing earnings management was detected (Kjærland et al., 2021). Findings from studies on earning management during the Covid pandemic show the same patterns as earlier literature on crisis periods. There are contradicting results where some studies found less earnings management activity during the pandemic (Ali et al., 2022), while others found indications of more income-decreasing earnings management (Liu & Sun, 2022). As such, there is a divide in the literature regarding earnings management in crisis periods, with compelling arguments on both sides.

2.3 Earnings management in the real estate sector

While much research has been conducted on the topic of earnings management and accrual accounting, earnings management in the real estate sector seems to be neglected apart from some studies in Asia and America. Matteo and Francesco (2018) were quick to point out that the real estate sector is a void in the existent literature.

Anglin et al. (2013) examined the relationship between REIT (real estate investment trust) governance and earnings management. The study contained samples of 158 REITs from the United States in the period 2004-2008. Their results indicated that REITs engaged in certain forms of earnings management, but the ability to manipulate earnings for REITs decreased when the corporate governance was more effective (Anglin et al., 2013). In Brazil, Matteo and Francesco (2018) found that the management's discretion to accrue revenues at the end of the year when the cash is not received, did not increase earnings management. On the other hand, they found a significant relationship between the insider shareholding and earnings management practices. They assumed that the likelihood of earnings management to occur is lower when the executives are the controlling shareholders (Matteo & Francesco, 2018).

Evidence from the Vietnamese stock exchange found that real estate was the sector with the highest score on earnings management involvement (Nguyen et al., 2018), using the Beneish

score model to detect earnings management. The Vietnamese market was also used as the empirical base for the study conducted by Nguyen et al. (2020), where they investigated the ownership structure's role in earnings management in real estate companies. Their findings showed that an increased level of state ownership is positively related to earnings management (Chen et al., 2008; Nguyen et al., 2020). Like Matteo and Francesco (2018) they found that management and board ownership in the company are negatively related to earnings management (Nguyen et al., 2020).

Studies on the matter from China is mostly linked to government regulation, which is more common and stricter than in western countries. Findings indicated that the rapid growth in China combined with regulations made companies more likely to adopt earnings management (Chen et al., 2011; Hou & Li, 2017). Earnings management became a tool to hide some of the growth in an attempt to avoid regulations (Chen et al., 2011). This method is often referred to as the political cost hypothesis.

2.4 Hypotheses development

On the background of the literature discussed regarding earnings management in crisis periods we formulate two hypotheses. Existing literature on earnings management argues that the importance of reporting quality increases during crises (Arthur et al., 2015). Investor trust combined with stricter regulatory entities is often argued to lead to less earnings management during crises (Chia et al., 2007). This is the fundament of our first hypothesis, formulated below:

H_1: *Earnings quality increases, and there are less earnings management in crisis periods.*

The firm's management is an important entity in the earnings management. The management has the power to change and interpret certain parts of the firm's accounting. Pourciau (1993) found evidence that link manager changes to earnings management. Like Nieken and Sliwka (2015) they found evidence for income decreasing activities in the first year of manager change, and higher earnings in the subsequent year. This indicates the use of a big bath strategy. On the background of this we formulate the following hypotheses:

H_2: *Manager changes lead to more income decreasing activities.*

3. Data

3.1 Data and sample selection

The final dataset consists of yearly observations from 256 firms. These firms operate in the real estate sector, and all aspects of the real estate sector is included. When possible, we collect financial statements as long back as 2005, the year when IFRS became mandatory for all publicly traded European firms. Financial statements were gathered in both reported currency and euros. Market capitalization was not available in euro, so yearly average rates were gathered from OFX (2022) and European Central Bank (2022). We also gather press releases regarding manager changes form the Eikon DataStream database. The countries we include is England (London stock exchange), Germany (Frankfurt stock exchange), France (Euronext Paris), Netherlands (Euronext Amsterdam), Belgium (Euronext Brussel), Sweden (Nasdaq Stockholm), Denmark (Nasdaq Copenhagen), Norway (Euronext Oslo), Finland (Nasdaq Helsinki) and Iceland (Nasdaq Island). The list we are using to select real estate firms is stated in appendix Table A10.

We organize our data as a panel dataset, with fixed firm effects. The initial dataset consists of 278 firms and 3418 firm years. Table A2 shows that several firm years are lost due to duplicates and insufficient reporting, especially of gross value of property plant and equipment. There are only 549 missing observations due to net value of property plant and equipment, compared to 1338 for gross value, which we use in the main analyses. To increase the robustness, we also conduct some of the analysis using net value, which shows the same trends. Table A9 and Figure A1 shows the results from these analyses.

We chose to drop observations that lack net income, revenue, operating cash flow and property plant and equipment. We also drop one outlier observation, with a value for total accruals scaled by lagged total assets higher than 400, compared to the approximate mean of 0.4.

There is some variation in the literature regarding observation frequency, where quarterly and yearly observations are most common. While quarterly data allows for a more accurate isolation of events, the yearly observations appear to be more complete and of a higher standard. Considering the fact that not all countries had quarterly reporting, we choose to conduct the analyses using yearly observations.

The sample selection consists of firms listed on the main stock exchanges in 10 different European countries. In addition to including the biggest and most stable economies, the legal systems and investor protection were also taken into consideration during the selection process.

Leuz et al. (2003) ranked different countries in three groups based on their legal system and investor protection. The Scandinavian countries were very similar, and every other country included in this study had a similar score to the Scandinavian countries and were not ranked below the second group.

3.2 Descriptive statistics

Panel 1: Descriptive statistics all non-crisis years					
Variable	Obs	Mean	Std. Dev.	Min	Max
TA	1130	0.078	0.792	-1.814	20.126
Revenue	1130	234,018	537,156	0	7,223,200
Net income	1130	132,201	289,896	-328,742	2,457,094
Operating cash flow	1130	64,230	149,908	-352,582	1,555,900
Total assets	1130	2,333,950	4,553,377	1,034	56,476,100
ROA	1130	0.097	0.832	-2.407	25.693
OCF	1130	0.019	0.424	-9.22	5.567
MB	1067	1.287	0.946	0.007	14.428
GROWTH	1123	0.558	7.791	-1.453	252.478
LEVERAGE	1130	0.531	0.193	0.005	1.966
Panel 2: Descriptive statistics all crisis years					
TA	623	-0.017	0.114	-1.283	0.614
Revenue	623	207,733	503,071	0	7,110,800
Net income	623	17,863	213,729	-1,467,800	3,268,500
Operating cash flow	623	55,892	159,801	-264,880	1,430,500
Total assets	623	1,892,382	4,254,959	1,171	62,417,400
ROA	623	0.01	0.12	-1.419	0.992
OCF	623	0.028	0.111	-0.639	1.39
MB	580	1.003	0.958	0.009	13.489
GROWTH	614	0.327	2.198	-1	35.167
LEVERAGE	623	0.549	0.207	0.017	2.271

Table 1. ***Descriptive statistics on the most important variables.***
Note: Revenue, net income, operating cash flow and total assets are stated in thousands of Euros. All variables are in the same currency to get a more accurate view. TA, ROA, OCF, MB, GROTH and LEVERAGE are ratios and currency is therefore irrelevant.

Nature of operation	**Freq.**	**Percent**	**Country**	**Freq.**	**Percent**
Real estate rental & development	1045	59.61	Norway	43	2.45
Commercial REIT	387	22.08	Sweden	255	14.55
Residential REIT	52	2.97	Denmark	40	2.28
Specialized REIT	70	3.99	Finland	23	1.31
Real estate services	94	5.36	Iceland	17	0.97
Diversified REIT	46	2.62	Germany	243	13.86
Investment management	10	0.57	France	340	19.40
Online services	3	0.17	Netherland	65	3.71
Homebuilding	21	1.20	Belgium	191	10.90
Hotels, motels & cruise	10	0.57	England	536	30.58
Construction & engineering	15	0.86			
Total	**1753**	**100.00**	**Total**	**1753**	**100.00**

Table 2. ***Descriptive statistics on composition of dataset.***
Note: All firms in this study are operating in the real estate sector, but there are differences in their operations. To the left in table 3 we made an overview over operating activities for the firms in this study. Table 3 also gives an overview country-wise.

Table 1 summarizes the most important variables in the dataset. The table is divided into two panels. Panel 1 shows summary statistics of the variables in non-crisis years, while panel 2 shows statistics in crisis years, as defined in appendix Table A1. Interestingly, we can see that there is a notable difference in total accruals scaled on total lagged assets. In non-crisis years its mean value is positive, while it is negative in crisis years. Net income and operating cash flow confirms that the firms' profitability is lower in crisis years, with a difference in mean value of net income of roughly 86%. With a fall of only 13% in in operating cash flow, we will naturally get a lower value of total accruals. The mean value of total assets falls almost 19%, which seems logical given that the real estate sector is an asset heavy sector, and their assets tends to lose some value in economically difficult times.

Table 2 describes the dataset regarding what kind of real estate firms we include, and the distribution of observations from each country. Frequency is the number of observations of total accruals scaled on lagged total assets. There is a clear overweight of firms operating in *real estate rental, development and operations*, and also a fair number of *REITs*. The number of observations in the Nordic counties is clearly largest in Sweden. England is the largest in total with over 30% of the observations. France, Germany and Belgium also have a fairly large number of observations.

Variables	TA/At-1	1/At-1	ΔREV-ΔREC	PPE	ΔREV	MB	ROA	OCF	FINANCE	LOAN	COVID	CFO	CEO
TA/At-1	1.000												
1/At-1	0.173	1.000											
ΔREV-ΔREC	-0.613	0.024	1.000										
PPE	0.011	0.259	-0.057	1.000									
ΔREV	0.574	0.150	-0.019	0.009	1.000								
MB	-0.025	0.287	0.084	0.045	0.081	1.000							
ROA	0.903	0.168	-0.623	0.007	0.674	-0.008	1.000						
OCF	0.040	0.035	-0.185	-0.006	0.383	0.034	0.466	1.000					
FINANCE	-0.051	0.037	-0.029	0.057	-0.067	-0.103	-0.047	-0.005	1.000				
LOAN	-0.024	0.045	0.007	0.033	-0.019	-0.065	-0.019	0.006	-0.150	1.000			
COVID	-0.026	-0.048	-0.027	-0.055	-0.043	-0.035	-0.021	0.006	-0.125	-0.121	1.000		
CFO	-0.005	-0.032	-0.009	-0.001	-0.019	0.005	-0.018	-0.031	0.016	-0.052	0.007	1.000	
CEO	-0.017	-0.045	-0.016	0.002	-0.025	0.014	-0.024	-0.021	-0.028	0.015	0.014	0.146	1.000

Table 3. ***Correlation matrix.***

To investigate the effect of manager change on earnings management, we gather press releases on manager changes from 2006 to the last available fiscal year. Figure 1 shows a graph that illustrates the number of manager changes throughout the period. The three lines indicate different variables, where the line graphing CEO and CFO is the number of changes in these positions. MC is a dummy variable consisting of changes in either CEO or CFO.

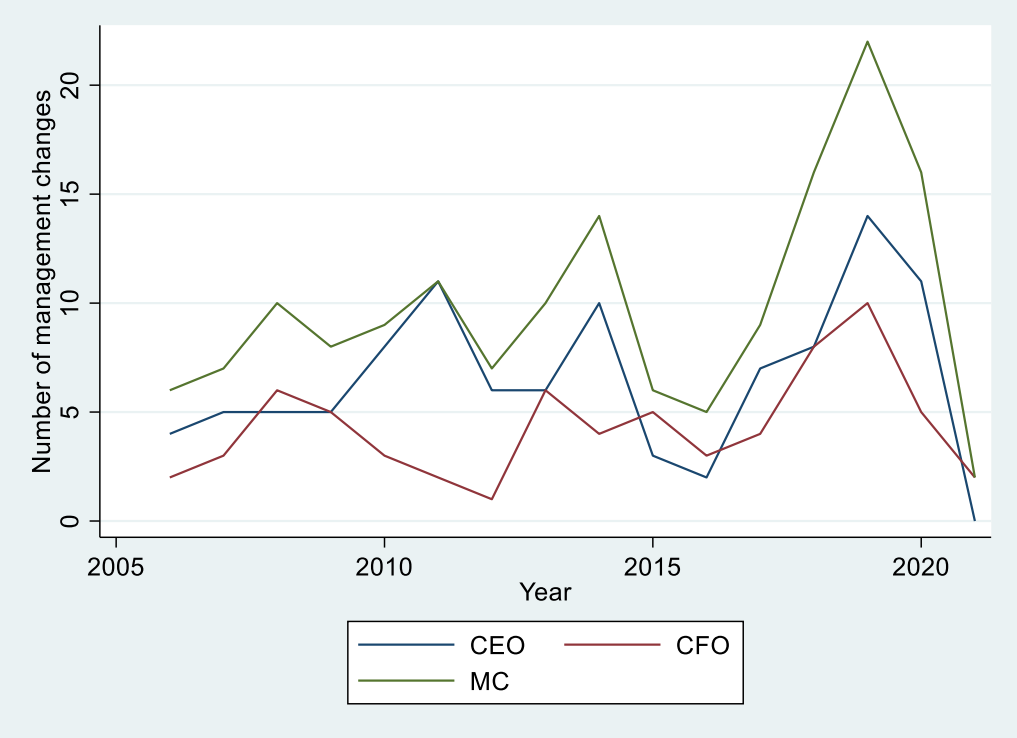


Figure 1. ***Number of manager changes on a yearly basis 2006-2021.***

4. Empirical methods

4.1 Event period

There have been multiple periods of economic turmoil that arguably affected the real estate sector. We focus on three crisis periods. These periods are the financial crisis in 2008-2009, the loan crisis in 2011-2012 and the Covid pandemic in 2020-2021. To research these crisis periods, we gather yearly financial data from 2005 to the last reported year, for the majority 2020. Manger change observations are gathered from 2006 to the last reported year, through press releases.

4.2 Measurements of earnings management

Dechow et al. (1995) conducted a study where they tested five different models often used to detect earnings management. Jones (1991) and Modified Jones (Dechow et al., 1995) were the best of the models tested and is included in our study. Generally, the models had a relatively low power for detecting earnings management. Dechow et al. (1995) further stated that to detect a small management of earnings, for example a percentage point of total assets, it will most likely take a relatively large sample size to be able to detect it.

To test H1, we will use four different models. By using a broader scope of models, we will likely mitigate some of the problems connected to using accrual accounting as a measure of earnings management. The four models are the Jones model (Jones, 1991), the modified Jones model (Dechow et al., 1995), the Kothari, Leone and Wasley model (Kothari et al., 2005) and the Larcker and Richardson model (Cimini, 2015). These models are often used in earnings management research and the results from all four models will enhance the robustness of our analyses. The Jones model is the first metric for earnings management. The model is formulated in equation (1) below.

$$TA_{it} = \beta_0 + \beta_1(1/A_{it-1}) + \beta_2(\Delta REV_{it}) + \beta_3 PPE_{it} + \varepsilon_{it} \quad Eq(1)$$

TA is the total accruals scaled by lagged assets. Total accruals are net income after taxes, subtracted by operating cash flow. A_{it-1} are the lagged total assets for the company in year t. ΔREV is the change in revenue from t-1 to t, scaled by companies lagged total assets in year t. PPE is the gross value of property, plant and equipment, scaled by lagged total assets in year t.

The second model is the modified Jones model, which was developed by Dechow et al. (1995). This model was found to have the best power of predicting earnings management, closely followed by the Jones model, compared in a study testing five different models (Dechow et al., 1995). The modified Jones model is formulated in equation (2) below.

$$TA_{it} = \beta_0 + \beta_1(1/A_{it-1}) + \beta_2(\Delta REV_{it} - \Delta REC) + \beta_3 PPE_{it} + \varepsilon_{it} \quad Eq(2)$$

This model is mostly similar to the jones model, with the exception that the change in receivables is subtracted from the change in revenue. The variable ΔREC is the change in total receivables from t-1 to t, scaled by lagged total assets for year t. By adding ΔREC, the modified model implicitly assumes that all changes in credit sales are attributable to earnings management. The basis for this is the assumption that it is easier to manage credit sales compared to cash sales (Dechow et al., 1995).

Dechow et al. (1995) concluded that Jones and modified Jones where the best models to detect earnings management, but they did not control for firm performance. The sentiment were therefore that samples containing firms with extreme performances could lead to mis-specified tests. Kothari et al. (2005) added an additional variable to control for firm performance. The Kothari model is formulated in equation (3).

$$TA_{it} = \beta_0 + \beta_1(1/A_{it-1}) + \beta_2(\Delta REV_{it} - \Delta REC) + \beta_3 PPE_{it} + \beta_4 ROA_{it} + \varepsilon_{it} \quad Eq(3)$$

This model adds another variable, ROA which is net income after tax, scaled by lagged total assets. ROA is added in the model made by Kothari et al. (2005) to control for the effect of performance on measured discretionary accruals. Performance measures such as ROA is good at detecting abnormal operating performances. Kothari et al. (2005) argued that controlling for performance is necessary because of the positive relation between forecasted sales growth and accruals. This relation stems from the firm's investment in working capital, which is needed to support the forecasted growth.

Larcker and Richardson (2004) argued that market expectations and future growth can put a pressure on managers to engage in earnings management. They added additional variables such as MB and OCF to control for the variation in total accruals. MB is the market to book ratio, and OCF is the operating cash flow scaled by lagged assets.

$$TA_{it} = \beta_0 + \beta_1(1/A_{it-1}) + \beta_2(\Delta REV_{it} - \Delta REC) + \beta_3 PPE_{it} + \beta_4 MB_{it} + \beta_5 OCF_{it} + \varepsilon_{it} \quad Eq(4)$$

We estimate equations (1)-(4) using fixed effects regressions. Through the Hausman test in Table A7, we find that all four models are best suited for fixed effect regression analysis. A high correlation between variables can lead to imprecise results, and we therefore test for multicollinearity using VIF tests and a correlation matrix. All VIFs in Table A8 are under 5 and the results from the correlation matrix in Table 3 tells us that multicollinearity is not a problem.

$$DA = TA - NDA \quad Eq(5)$$

We use Discretionary accruals as a proxy measure of earnings management. Equation (5) shows that discretionary accruals are equal to TA (total accruals) less NDA (non-discretionary accruals). This means that discretionary accruals are stated as ε_{it} in equations (1)-(4). We calculate the residual of all four models to find discretionary accruals.

5. Empirical results

In this part of the study, we highlight the results of the conducted analyses. We start with the regression analysis, with total accruals scaled by lagged total assets as the dependent variable. By using the models in equations (1)-(4) in a fixed firm effects regression analysis, we calculate the residuals, i.e., the expected discretionary accruals. We will thereafter use various forms of discretionary accruals as the dependent variable in regression analysis to investigate the different factors' effect on earnings management.

Table 4 takes the crisis and change in management dummy variables into the regression analysis with the four different models. This tells us the effect the dummy variables have on total accruals. The crisis variables all have negative coefficients, where Modified Jones and Larcker and Richardson are significant at 1% level. Financial crisis is also significant at 5% level with the Kothari model. The rest of the results are not significant but shows the same trend with negative coefficients. These results, with equation (5) in mind, seem to indicate lower levels of discretionary accruals in crisis periods.

In regard to change in management, CFO gives varying results in the different models, and is only significant in the Kothari model. Changes in CEO position produce negative coefficients in all four models, significant at 5% and 1% level in the Modified Jones and Larcker & Richardson models. This may indicate that change of CEO also leads to lower levels of discretionary accruals.

TA	Jones	Modified Jones	Kothari	Larcker & Richardson
1/At-1	4155.6770*	5239.9351**	2792.5393	7344.0809*
	(2376.9363)	(2525.1002)	(1921.4997)	(4345.0231)
ΔREV	1.3816			
	(0.8700)			
ΔREV-ΔREC		-1.7844**	-0.3086	-2.0618***
		(0.8041)	(0.1977)	(0.7518)
PPE	-0.1387*	-0.1049*	-0.0310	-0.0907
	(0.0734)	(0.0557)	(0.0435)	(0.1127)
FINANCE	-0.0757	-0.1874***	-0.0729**	-0.1811***
	(0.0470)	(0.0493)	(0.0346)	(0.0473)
LOAN	-0.0484*	-0.0974***	-0.0382*	-0.1004***
	(0.0287)	(0.0305)	(0.0223)	(0.0342)
COVID	-0.0005	-0.1059***	-0.0198*	-0.1193***
	(0.0331)	(0.0326)	(0.0118)	(0.0323)
CEO	-0.0046	-0.0673**	-0.0026	-0.0781***
	(0.0273)	(0.0304)	(0.0144)	(0.0271)
CFO	0.0522	-0.0021	0.0439*	-0.0243
	(0.0347)	(0.0439)	(0.0237)	(0.0506)
ROA			0.7285***	
			(0.0550)	
OCF				-0.1308
				(0.4594)
MB				-0.0581
				(0.0605)
Constant	-0.0191	0.0369	-0.0278	0.1080
	(0.0394)	(0.0342)	(0.0219)	(0.0706)
R^2 within	0.3427	0.4372	0.7943	0.5140
R^2 between	0.0464	0.0088	0.1914	0.0018
R^2 overall	0.2457	0.2827	0.7161	0.3779
Rho	0.3387	0.5048	0.4713	0.4431
Number of groups	190	190	190	183
Observations	1753	1749	1749	1643

Table 4. ***Fixed effects regression analysis with TA as dependent variable.***
*Note: Standard errors in parentheses. All standard errors are robust. The stars indicate significance levels (significant at 1%***, 5%** and 10%*). Model 1 to 4 can be found in equations (1)-(4). The crisis and management change variables (FINANCE, LOAN, COVID, CEO and CFO) are dummy variables. The reference period for all the crisis periods are all non-crisis years.*

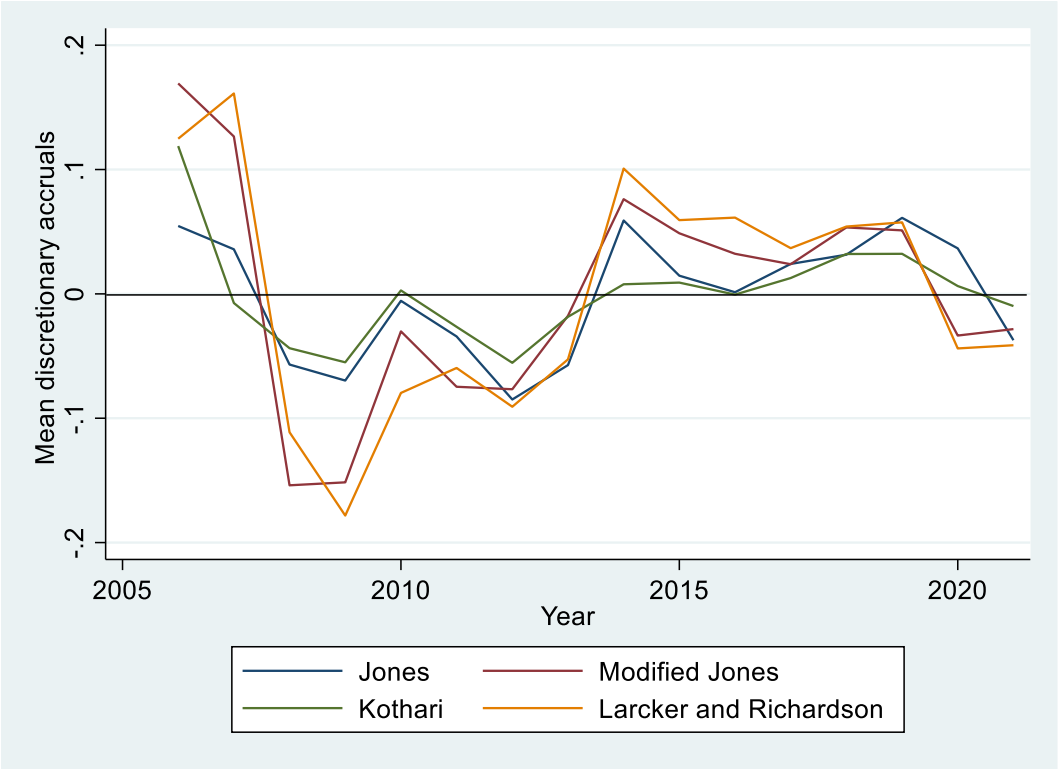
To test H_1, we use the regressions in Table A3 in the appendix to generate average discretionary accruals for each model (equations (1)-(4)). We estimate the values of discretionary accruals for both crisis and non-crisis period. To test the difference between the means of the periods, we conduct a t-test. Table 5 presents the results of these t-tests. Our results in Table 5 indicate

that there are significantly lower discretionary accruals during the three periods of crisis. Discretionary accruals are negative in almost all crisis periods, and positive otherwise. The differences between crisis and non-crisis periods are mostly significant. This reveals the same pattern for all the models and shows the robustness in our findings.

Figure 2 is an illustration of the yearly mean discretionary accruals. There is a big drop in discretionary accruals from 2006-2007 to 2008-2009. Discretionary accruals from the modified Jones and Larcker and Richardson models seem to vary more, as they have the most "extreme" levels both on the high and low side. Almost every year defined as a crisis year show negative mean discretionary accruals for all models, except for Jones and Kothari in 2020. This may be an indication of income decreasing activities in crisis periods. We will investigate this further in the following section.

Period	**Obs**	**Jones**	**Modified Jones**	**Kothari**	**Larcker & Richardson**
Non crisis year	1130	0.014	0.033	0.011	0.033
Financial crisis	237	-0.009	-0.021	-0.007	-0.019
Difference		0.023*	0.054***	0.018**	0.051***
t-value		1.781	4.245	2.403	4.449
Non crisis year	1130	0.014	0.033	0.011	0.033
Loan crisis	235	-0.008	-0.010	-0.005	-0.009
Difference		0.022*	0.044***	0.017**	0.0418***
t-value		1.731	3.532	2.228	3.787
Non crisis year	1130	0.014	0.033	0.011	0.033
Covid crisis	151	0.002	-0.003	0.000	-0.004
Difference		0.012	0.036***	0.011	0.036***
t-value		1.015	3.1633	1.603	3.452
Non crisis year	1130	0.014	0.033	0.011	0.033
All crisis	623	-0.014	-0.033	-0.011	-0.033
Difference		0.029**	0.067***	0.023***	0.066***
t-value		2.110	4.927	2.857	5.320

Table 5. ***T-test of discretionary accruals from each model.***
Note: States mean discretionary accruals in the three different economic crisis, compared to non-crisis period.



Figur 2. ***Mean discretional accruals trough the sample period 2006-2021.***

Note: Jones is the residual from fixed firm effects regression of equation (1). Modified Jones is the residual from fixed firm effects regression of equation (2). Kothari is the residual from fixed firm effects regression of equation (3). Larcker and Richardson is the residual from fixed firm effects regression of equation (4).

Table 6 shows a regression analysis with discretionary accruals as the dependent variable. The variable GROWTH is significant at a minimum level of 5% in three out of four models, which indicates that this variable has a significant impact on discretionary accruals. The coefficients for GROWTH in the different models vary, where two are negative, and two are positive. This is peculiar, and we find no reason for why the four models should give different results.

Table 6 also shows results for crisis variables for the financial crisis, loan crisis and Covid pandemic. The coefficients are mostly significant and indicate that crisis periods have an impact on discretionary accruals. All coefficients for the crisis variables are negative, which may indicate that income decreasing activities during crisis periods. We investigate this further in Table 7 and 8. We include two dummy variables for manager change in Table 6, specified as CFO and CEO. The CEO variable is significant at the 5 % and 1 % level in the Modified Jones and the Larcker & Richardson models. This indicates that change in a firm's CEO could have an impact on discretionary accruals. Table A4 in the appendix contains the same dummy variables, but instead of separating the crisis into three periods, and manager change into CFO and CEO, we have merged them into one crisis variable (CRISIS) and one variable for manager

change (MC). Except for the Jones model, the crisis variable, which includes all crises, is significant at 1% level for all models. The manager change variable reveals varying results in Table A4, and none of the models gives significant results.

DA	**Jones**	**Modified Jones**	**Kothari**	**Larcker & Richardson**
Market CAP	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
GROWTH	-0.0203**	0.0149*	-0.0075***	0.0180**
	(0.0094)	(0.0086)	(0.0008)	(0.0078)
LEVERAGE	0.0018	-0.0644	0.1205	0.1058
	(0.2950)	(0.2729)	(0.2633)	(0.2407)
FINANCE	-0.0382	-0.1365***	-0.0476**	-0.1602***
	(0.0315)	(0.0358)	(0.0204)	(0.0397)
LOAN	-0.0493*	-0.0743***	-0.0386*	-0.0869***
	(0.0254)	(0.0277)	(0.0200)	(0.0282)
COVID	-0.0157	-0.1031***	-0.0253***	-0.1062***
	(0.0211)	(0.0239)	(0.0078)	(0.0251)
CEO	-0.0146	-0.0533**	-0.0058	-0.0696***
	(0.0226)	(0.0231)	(0.0163)	(0.0204)
CFO	0.0399	-0.0027	0.0372	-0.0168
	(0.0307)	(0.0416)	(0.0251)	(0.0449)
Constant	0.0281	0.0768	-0.0428	-0.0247
	(0.1597)	(0.1438)	(0.1393)	(0.1272)
R^2 within	0.0747	0.0656	0.0468	0.0975
R^2 between	0.0458	0.0383	0.0039	0.0347
R^2 overall	0.0691	0.0543	0.0379	0.0888
Rho	0.2420	0.4138	0.3472	0.4560
Number of groups	182	182	182	181
Observations	1637	1633	1633	1627

Table 6. Fixed effects regression analysis with DA as dependent variable.
Note: Standard errors in parentheses. All standard errors are robust. *The stars indicate significance levels (significant at 1%***, 5%** and 10%*). The dependent variable is discretionary accruals. The discretionary accruals are gathered from the predicted residuals of equations (1)-(4). Variables defined in Table A1 in appendix.*

Significant negative coefficients in both Table 4 and 6, combined with the trend shown in Figure 2, makes it reasonable to check for income decreasing activities. Inspired by Arthur et al. (2015) we conduct the same regression as in Table 6, only with DA≥0 and DA<0 as dependent variables. Table 7 and 8 looks closer into whether the earnings management results indicate income increasing or decreasing activities. To do this, we separate the observations of discretionary accruals into two different variables. DA≥0 is for observation of discretionary accruals greater than or equal to zero. DA<0 is for negative observations of discretionary accruals. We use these two variables as the dependent variables to see if manager change or crises show significant negative or positive levels in both cases.

Table 7 and 8 research if the firms engage in positive or negative earnings management. Significant positive coefficients in both tables would indicate income increasing earnings management, while negative coefficients will indicate income decreasing earnings management. The three crisis periods have generally negative coefficients in both Table 7 and 8. Table A5 and A6 in the appendix, show the same results, in form of significant negative coefficients in both cases for the CRISIS variable. This indicates income decreasing activities because of the negative effect the variables have on discretionary accruals in both groups.

CFO and CEO produces no significant results when combining the two regressions. CEO produce significant negative results for positive discretionary accruals, while the coefficient for CEO is negative but not significant for negative discretionary accruals. Table A5 and A6 provides the same outcome for MC.

DA≥0	Jones	Modified Jones	Kothari	Larcker & Richardson
Market CAP	0.0000*	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
GROWTH	0.0062	0.0143*	0.0003	0.0172**
	(0.0083)	(0.0081)	(0.0005)	(0.0072)
LEVERAGE	0.1969	0.0949	0.1926	0.0440
	(0.2015)	(0.2065)	(0.2462)	(0.1937)
FINANCE	-0.0102	-0.0543***	-0.0270*	-0.0574***
	(0.0192)	(0.0197)	(0.0145)	(0.0195)
LOAN	-0.0334	-0.0500**	-0.0252	-0.0521***
	(0.0208)	(0.0215)	(0.0176)	(0.0198)
COVID	-0.0381**	-0.0869***	-0.0256***	-0.0891***
	(0.0156)	(0.0202)	(0.0060)	(0.0194)
CEO	-0.0179	-0.0424***	-0.0019	-0.0464***
	(0.0140)	(0.0131)	(0.0135)	(0.0133)
CFO	-0.0081	-0.0026	0.0235	-0.0036
	(0.0192)	(0.0318)	(0.0220)	(0.0352)
Constant	-0.0196	0.0538	-0.0555	0.0837
	(0.1066)	(0.1087)	(0.1298)	(0.1016)
R^2 within	0.0136	0.0656	0.0113	0.1099
R^2 between	0.0032	0.0131	0.0034	0.0343
R^2 overall	0.0072	0.0594	0.0014	0.1018
Rho	0.1557	0.1295	0.1309	0.1504
Number of groups	182	182	182	181
Observations	1637	1633	1633	1627

Table 7. ***Fixed effects regression analysis with DA≥0 as dependent variable.***
*Note: Standard errors in parentheses. All standard errors are robust. The stars indicate significance levels (significant at 1%***, 5%** and 10%*). The dependent variable is all observations of discretionary accruals below or equal to 0.*

DA<0	Jones	Modified Jones	Kothari	Larcker & Richardson
Market CAP	-0.0000	-0.0000	-0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
GROWTH	-0.0264***	0.0008	-0.0076***	0.0009
	(0.0014)	(0.0009)	(0.0006)	(0.0008)
LEVERAGE	-0.1951	-0.3374	-0.1474	0.0377
	(0.1724)	(0.2160)	(0.0987)	(0.0733)
FINANCE	-0.0280	-0.0738***	-0.0164	-0.0987***
	(0.0245)	(0.0256)	(0.0131)	(0.0301)
LOAN	-0.0159	-0.0241	-0.0132	-0.0312*
	(0.0153)	(0.0157)	(0.0089)	(0.0188)
COVID	0.0224**	-0.0153	0.0007	-0.0165
	(0.0109)	(0.0112)	(0.0049)	(0.0128)
CEO	0.0033	-0.0201	-0.0078	-0.0177
	(0.0151)	(0.0197)	(0.0082)	(0.0153)
CFO	0.0480**	0.0011	0.0141*	-0.0135
	(0.0197)	(0.0197)	(0.0084)	(0.0237)
Constant	0.0477	0.1202	0.0538	-0.0966**
	(0.0950)	(0.1181)	(0.0546)	(0.0419)
R^2 within	0.4737	0.0608	0.2553	0.0262
R^2 between	0.0141	0.0000	0.0089	0.0263
R^2 overall	0.3132	0.0001	0.0493	0.0308
Rho	0.5414	0.7028	0.7180	0.6984
Number of groups	182	182	182	182
Observations	1637	1637	1637	1637

Table 8. ***Fixed effects regression analysis with DA<0 as dependent variable.***
*Note: Standard errors in parentheses. All standard errors are robust. The stars indicate significance levels (significant at 1%***, 5%** and 10%*). The dependent variable is all observations of discretionary accruals larger than 0.*

6. Discussion and conclusion remarks

This study seeks to investigate earnings management in the real estate sector. More specifically, we look closer at the impact of crisis and manager change on earnings management. H_1 refers to the impact economic crisis has on earnings management. We hypothesize that crisis periods lead to less earnings management. Existing literature on the matter has argued that crisis periods increased the importance of earnings quality regarding investor trust and regulatory scrutiny (Arthur et al., 2015; Filip & Raffournier, 2014). There is also a notion that earnings quality is lower in periods of economic distress, because of managers incentives to compensate for poor performance (Ahmad-Zaluki et al., 2011). Information asymmetry increases during periods of economic destress and allows for such opportunistic behavior by mangers (Liao et al., 2013). The bases of our findings stem from the use of discretionary accruals as a measure of earnings management. There is a strong indication of income decreasing activities in crisis periods, and the results are especially strong for the financial crisis.

The two most likely methods used by the real estate firms to achieve these results are big bath or the political cost hypothesis. This hypothesis is simply put the belief that firms reduce their earnings in periods when their assets (like oil) increase in value, with the aim of escaping political scrutiny (Watts & Zimmerman, 1986). Research from the oil sector show some difference in opinion on this matter. Jerry and Wang (1998) and Byard et al. (2007) both contributed the decline in discretionary accruals to the political cost hypothesis. Kjærland et al. (2021) contributed their findings to the big bath method. Jerry and Wang (1998) and Byard et al. (2007) looked at positive oil price spikes, while Kjærland et al. (2021) looked at negative oil price spikes, which might explain their conclusions set aside the fact that all studies found income-decreasing activities. The real estate sector is not as politically scrutinized as the oil sector, and for two of the periods we examine (the financial crisis and loan crisis), real estate prices were negatively affected. This leads us to a similar conclusion as Kjærland et al. (2021), where we attribute the income-decreasing activities to the big bath strategy.

The aim of H_2 is to examine whether manger change impacts earnings management. We hypothesize that manager change will lead to more income decreasing activities. Prior research suggests that changes in the management gives strong incentives to manage earnings. Nieken and Sliwka (2015) and Pourciau (1993) found evidence for use of the big bath approach, after changing management. There are certain incentives for new managers to manipulate earnings using approaches as the big bath strategy and income smoothing. Our results indicate that change of CEO may have an impact on earnings management, where two out of four models

give significant results. Change of CFO does not seem to have an impact. The coefficients of CEO are negative, but seen in light of Table 7 and 8, we do not have strong enough evidence to claim income decreasing earnings management. This may be because of more limited observations and generally weaker results in manager changes compared to crisis. We can see that three out of four models give negative coefficients for CEO in Table 8, but none of them are significant. Regardless of no significant results, this shows the same trends as previous literature (Nieken & Sliwka, 2015; Pourciau, 1993). It is reasonable to assume that our results would be in line with the consensus in the literature, with a larger number of observations.

The results from this research have implications for stakeholders in the real estate sector. The fact that this is the first study with this focus area means that it will give stakeholders unique insights. The results from our study suggest that stakeholders should be extra alert in crisis periods. Investors especially, should be aware real estate firms' behavior during crisis periods, as such behavior can cause the value of real estate firms to become artificially low during the crisis periods and reverse in the following period. This is because a big bath strategy will lead to higher earnings in the future, and ignorance among stakeholders may cause an overvaluation of the firm.

This study has some limitations. Due to our approach of investigating one specific sector we have less observations than studies without sector limitations. Using accrual accounting to detect earnings management is not a flawless method, and we therefore try to mitigate the issue by using four different models. The dataset consists of yearly reported accounting numbers, which provides better quality, but is less accurate in delimiting crisis periods. The number of observations is skewed in the sense that England alone accounts for 30% of the observations, and the three largest countries account for over 60%. The clear limitation in our investigation of the H_2 is the actual number of manager changes. There are few manager changes in a dataset of this size, and a larger number of observations would most likely strengthen the results.

Future research should compare the results from the real estate sector to other sectors. The effects of manager change on earnings management should be investigated with a larger number of observations. This would further help to answer the question of what strategies is brought to the firm by new management.

References

Ahmad-Zaluki, N. A., Campbell, K., & Goodacre, A. (2011). Earnings management in Malaysian IPOs: The East Asian crisis, ownership control, and post-IPO performance. *The International Journal of Accounting*, *46*(2), 111-137. https:/doi.org/10.1016/j.intacc.2011.04.001

Ali, H., Hala M.G, A., Mostafa, D., & Ehab K.A, M. (2022). Earnings management and investor protection during the COVID-19 pandemic: evidence from G-12 countries. *Managerial Auditing Journal*(0268-6902). http:/dx.doi.org/10.1108/MAJ-07-2021-3232

Anglin, P., Edelstein, R., Gao, Y., & Tsang, D. (2013). What is the Relationship Between REIT Governance and Earnings Management? *The Journal of Real Estate Finance and Economics*, *47*(3), 538-563. https://doi.org/10.1007/s11146-012-9367-y

Arthur, N., Tang, Q., & Lin, Z. (2015). Corporate accruals quality during the 2008–2010 Global Financial Crisis. *Journal of International Accounting, Auditing and Taxation*, *25*, 1-15. https:/doi.org/10.1016/j.intaccaudtax.2015.10.004

Beidleman, C. R. (1973). Income Smoothing: The Role of Management. *The Accounting Review*, *48*(4), 653-667. http://www.jstor.org/stable/245289

Byard, D., Hossain, M., & Mitra, S. (2007). US oil companies' earnings management in response to hurricanes Katrina and Rita. *Journal of Accounting and Public Policy*, *26*(6), 733-748. https:/doi.org/10.1016/j.jaccpubpol.2007.10.006

Chen, D., Li, J., Liang, S., & Wang, G. (2011). Macroeconomic control, political costs and earnings management: Evidence from Chinese listed real estate companies. *China Journal of Accounting Research*, *4*(3), 91-106. https:/doi.org/10.1016/j.cjar.2011.06.002

Chen, X., Lee, C.-W. J., & Li, J. (2008). Government assisted earnings management in China. *Journal of Accounting and Public Policy*, *27*(3), 262-274. https:/doi.org/10.1016/j.jaccpubpol.2008.02.005

Chia, Y. M., Lapsley, I., & Lee, H. W. (2007). Choice of auditors and earnings management during the Asian financial crisis. *Managerial Auditing Journal*, *22*(2), 177-196. https://doi.org/10.1108/02686900710718672

Cimini, R. (2015). How has the financial crisis affected earnings management? A European study. *Applied Economics*, *47*(3), 302-317. https://doi.org/10.1080/00036846.2014.969828

Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics*, *50*(2), 344-401. https:/doi.org/10.1016/j.jacceco.2010.09.001

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting Earnings Management. *The Accounting Review*, *70*(2), 193-225. http://www.jstor.org/stable/248303

European Central Bank. (2022). *Icelandic krona (ISK)*. European Central Bank. https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/eurofxref-graph-isk.en.html

Fields, T. D., Lys, T. Z., & Vincent, L. (2001). Empirical research on accounting choice. *Journal of Accounting and Economics*, *31*(1), 255-307. https:/doi.org/10.1016/S0165-4101(01)00028-3

Filip, A., & Raffournier, B. (2014). Financial Crisis And Earnings Management: The European Evidence. *The International Journal of Accounting*, *49*(4), 455-478. https:/doi.org/10.1016/j.intacc.2014.10.004

Healy, P. M., & Wahlen, J. M. (1999). A Review of the Earnings Management Literature and Its Implications for Standard Setting. *Accounting Horizons*, *13*(4), 365-383. https://doi.org/10.2308/acch.1999.13.4.365

Hepworth, S. R. (1953). Smoothing Periodic Income. *The Accounting Review*, *28*(1), 32-39. http://www.jstor.org/stable/241436

Hou, X., & Li, X. (2017). The Influence of Listed Real Estate Companies’ Competition to Real Earnings Management. In *ICCREM 2016* (pp. 903-910). https://doi.org/doi:10.1061/9780784480274.110

IFRS. (2021). *United Kingdom*. https://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/view-jurisdiction/united-kingdom/

Jerry, C. Y. H., & Wang, S.-W. (1998). Political Costs and Earnings Management of Oil Companies during the 1990 Persian Gulf Crisis. *The Accounting Review*, *73*(1), 103-117. http://www.jstor.org/stable/248343

Jones, J. J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research*, *29*(2), 193-228. https://doi.org/10.2307/2491047

Kirschenheiter, M., & Melumad, N. D. (2002). Can "Big Bath" and Earnings Smoothing Co-exist as Equilibrium Financial Reporting Strategies? *Journal of Accounting Research*, *40*(3), 761-796. https:/doi.org/10.1111/1475-679X.00070

Kjærland, F., Kosberg, F., & Misje, M. (2021). Accrual earnings management in response to an oil price shock. *Journal of Commodity Markets*, *22*, 100138. https:/doi.org/10.1016/j.jcomm.2020.100138

Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, *39*(1), 163-197. https:/doi.org/10.1016/j.jacceco.2004.11.002

Krishnan, G. V. (2003). Does Big 6 Auditor Industry Expertise

Constrain Earnings Management? *Accounting Horizons*, *17*, 1-16. https://doi.org/ https://doi.org/10.2308/ACCH.2003.17.S-1.1

Larcker, D. F., & Richardson, S. A. (2004). Fees Paid to Audit Firms, Accrual Choices, and Corporate Governance. *Journal of Accounting Research*, *42*(3), 625-658. https:/doi.org/10.1111/j.1475-679X.2004.t01-1-00143.x

Leuz, C., Nanda, D., & Wysocki, P. D. (2003). Earnings management and investor protection: an international comparison. *Journal of Financial Economics*, *69*(3), 505-527. https:/doi.org/10.1016/S0304-405X(03)00121-1

Liao, L., Kang, H., Morris, R. D., & Tang, Q. (2013). Information asymmetry of fair value accounting during the financial crisis. *Journal of Contemporary Accounting & Economics*, *9*(2), 221-236. https:/doi.org/10.1016/j.jcae.2013.10.001

Liu, G., & Sun, J. (2022). The impact of COVID-19 pandemic on earnings management and the value relevance of earnings: US evidence. *Managerial Auditing Journal*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/MAJ-05-2021-3149

Matteo, P., & Francesco, P. (2018). Earnings Management in Developing Countries. The Case of Brazilian Real Estate Industry. *Academy of Accounting and Financial Studies Journal*, *22*(1), 1-12. https://www.abacademies.org/articles/earnings-management-in-developing-countries-the-case-of-brazilian-real-estate-industry-earnings-management-in-developing-countries-the-case-of-brazilian-real-estate-industry-1528-2635-22-1-108.pdf?fbclid=IwAR3fRgZg7CTHMYdHVrROUl88ZI2F5T5S5eGTQZmsdKlDHvVYSl8n_zfM4nY

Mendes, C. A., Rodrigues, L. L., & Esteban, L. P. (2012). Evidence of earnings management using accruals as a measure of accounting discretion. *Tékhne*, *10*(1), 3-14. https:/doi.org/10.1016/S1645-9911(12)70002-6

Nguyen, A. H., Nguyen, H. L., & Yoon, S. W. (2018). Earnings Manipulation Benchmark for Nonfinancial Listed Companies in Vietnamese Stock Market. *Accounting & Taxation*, *10*(1), 39-49. https://ssrn.com/abstract=3203061

Nguyen, A. H., Nguyen, L. H., & Doan, D. T. (2020). Ownership Structure and Earnings Management: Empirical Evidence from Vietnam Real Estate Sector. *Real Estate Management and Valuation*, *28*(2), 37-51. https://doi.org/doi:10.1515/remav-2020-0014

Nieken, P., & Sliwka, D. (2015). Management Changes, Reputation, and "Big Bath"—Earnings Management. *Journal of Economics & Management Strategy*, *24*(3), 501-522. https:/doi.org/10.1111/jems.12101

OFX. (2022). *Yearly average rates*. OFX. https://www.ofx.com/en-au/forex-news/historical-exchange-rates/yearly-average-rates/

Peasnell, K. V., Pope, P. F., & Young, S. (2000). Detecting earnings management using cross-sectional abnormal accruals models. *Accounting and Business Research*, *30*(4), 313-326. https://doi.org/10.1080/00014788.2000.9728949

Pourciau, S. (1993). Earnings management and nonroutine executive changes. *Journal of Accounting and Economics*, *16*(1), 317-336. https:/doi.org/10.1016/0165-4101(93)90015-8

Türegün, N. (2020). Does financial crisis impact earnings management? Evidence from Turkey. *Journal of Corporate Accounting & Finance*, *31*(1), 64-71. https:/doi.org/10.1002/jcaf.22418

Watts, R. L., & Zimmerman, J. L. (1986). *Positive Accounting Theory*. Prentice-Hall Inc.

Appendix
Table A1

TA	Total accruals are calculated by subtracting cash flow from operating activities from net income after tax.
ΔREV	Delta revenue is the change in revenue from year t-1 to t-0.
ΔREC	Delta receivables is the change in receivables from year t-1 to t-0.
PPE	Gross value of property, plant and equipment
ROA	Return on assets is net income after tax divided on lagged total assets.
LEVERAGE	Leverage is calculated from total liabilities divided by total assets.
GROWTH	Sales growth are revenue t-1 subtracted form revenue t-0 divided on revenue t-1.
MB	Market to book ratio. Found by dividing market capitalization by book value.
OCF	Cash flow from operating activities scaled by lagged total assets.
Market Cap	Firms mean market capitalization throughout the year, in millions of euros. Average yearly FX rates for NOK, SEK, DKK, USD and GBP to EUR was gathered from OFX (2022), on 06.05.2022. ISK to EUR from European Central Bank (2022), on 06.05.2022.
DA	Discretionary accruals.
DA≥0	Positive discretionary accruals, all observations greater or equal to zero.
DA<0	Negative discretionary accruals, all observations less than zero.
NDA	Non-discretionary accruals.
CFO	A dummy variable for change in chief financial officer position.
CEO	A dummy variable for change in chief executive officer position.
MC	A dummy variable for manager changes in eighter chief financial officer or chief executive officer position.
FINANCE	A dummy variable for financial crisis, equals one in 2008 and 2009 and zero otherwise.
LOAN	A dummy variable for loan crisis, equals one in 2011 and 2012 and zero otherwise.
COVID	A dummy variable for covid pandemic, equals one in 2020 and 2021 and zero otherwise.
CRISIS	A dummy variable for all crisis periods, one when FINANCE, LOAN and COVID are one, zero otherwise.
Definitions	
Non-crisis years	Years 2006, 2007, 2010, 2013, 2014, 2015, 2016, 2017, 2018 and 2019.
All crisis years	Years 2008, 2009, 2011, 2012, 2020 and 2021.

Table A1. ***Definitions and explanations for all variables***

Table A2

Total real estate firms in respective countries	278
- Missing data	22
= Total firms in sample	**256**
Total firm years in sample	3418
- Duplicates	18
- Missing PPE	1338
- Missing REV	9
- Missing Net income	0
- Missing Operating cash flow	25
= Total firm years	**2028**

Table A2. ***Data sample.***
Note: Illustrates number of observations and firms in our analysis. Table A2 also provide an overview of the process from the initial to final dataset.

Table A3

TA	**Jones**	**Modified Jones**	**Kothari**	**Larcker & Richardson**
1/At-1	4100.9337*	5170.7527**	2737.4287	7135.7259
	(2384.5676)	(2568.8579)	(1922.5806)	(4375.6077)
ΔREV	1.3913			
	(0.8614)			
PPE	-0.1427*	-0.1142**	-0.0337	-0.0914
	(0.0740)	(0.0564)	(0.0456)	(0.1108)
ΔREV-ΔREC		-1.7700**	-0.2951	-2.0491***
		(0.8133)	(0.1929)	(0.7637)
ROA			0.7336***	
			(0.0538)	
OCF				-0.1322
				(0.4643)
MB				-0.0372
				(0.0620)
Constant	-0.0330	-0.0125	-0.0420*	0.0317
	(0.0368)	(0.0356)	(0.0249)	(0.0696)
R^2 within	0.3405	0.4246	0.7924	0.5008
R^2 between	0.0467	0.0085	0.1977	0.0006
R^2 overall	0.2449	0.2742	0.7164	0.3684
Rho	0.3369	0.4939	0.4632	0.4311
Number of groups	190	190	190	183
Observations	1753	1749	1749	1643

Table A3. ***Fixed effects regression analysis of model (1)-(4).***

*Note: Standard errors in parentheses. All standard errors are robust. The stars indicate significance levels (significant at 1%***, 5%** and 10%*). Model 1 to 4 can be found in equations (1)-(4). The crisis and management change variables (CRISIS and MC) is dummy variables. The reference period for crisis are all non-crisis years.*

Table A4

DA	Jones	Modified Jones	Kothari	Larcker & Richardson
Market CAP	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
GROWTH	-0.0202**	0.0149*	-0.0075***	0.0180**
	(0.0093)	(0.0086)	(0.0008)	(0.0078)
LEVERAGE	-0.0034	-0.0592	0.1186	0.1097
	(0.2952)	(0.2713)	(0.2621)	(0.2396)
CRISIS	-0.0362*	-0.1057***	-0.0386***	-0.1197***
	(0.0193)	(0.0229)	(0.0141)	(0.0239)
MC	0.0002	-0.0326	0.0061	-0.0449*
	(0.0211)	(0.0251)	(0.0144)	(0.0248)
Constant	0.0299	0.0729	-0.0424	-0.0296
	(0.1601)	(0.1437)	(0.1394)	(0.1272)
R^2 within	0.0742	0.0639	0.0456	0.0948
R^2 between	0.0389	0.0381	0.0057	0.0342
R^2 overall	0.0682	0.0538	0.0368	0.0880
Rho	0.2431	0.4138	0.3485	0.4556
Number of groups	182	182	182	181
Observations	1637	1633	1633	1627

Table A4. ***Fixed effects regression analysis with DA as dependent variable, and CRISIS and MC as variables for all crisis years and manager changes.***
*Note: Standard errors in parentheses. All standard errors are robust. The stars indicate significance levels (significant at 1%***, 5%** and 10%*). The dependent variable is discretionary accruals. The discretionary accruals are gathered from the predicted residuals of equations (1)-(4). Variables defined in Table A1.*

Table A5

DA≥0	Jones	Modified Jones	Kothari	Larcker & Richardson
Market CAP	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
GROWTH	0.0062	0.0143*	0.0003	0.0172**
	(0.0083)	(0.0081)	(0.0005)	(0.0072)
LEVERAGE	0.1977	0.0999	0.1927	0.0493
	(0.1995)	(0.2045)	(0.2447)	(0.1919)
CRISIS	-0.0261*	-0.0621***	-0.0262**	-0.0647***
	(0.0149)	(0.0163)	(0.0121)	(0.0155)
MC	-0.0273**	-0.0376**	0.0008	-0.0404**
	(0.0128)	(0.0173)	(0.0115)	(0.0194)
Constant	-0.0176	0.0542	-0.0548	0.0839
	(0.1060)	(0.1086)	(0.1299)	(0.1014)
R^2 within	0.0135	0.0651	0.0109	0.1093
R^2 between	0.0038	0.0145	0.0038	0.0386
R^2 overall	0.0074	0.0597	0.0012	0.1021
Rho	0.1554	0.1289	0.1315	0.1496
Number of groups	182	182	182	181
Observations	1637	1633	1633	1627

Table A5. ***Fixed effects regression analysis with DA≥0 as dependent variable, CRISIS and MC as variables for all crisis years and manager changes***

*Note: Standard errors in parentheses. All standard errors are robust. The stars indicate significance levels (significant at 1%***, 5%** and 10%*). The dependent variable is all observations of discretionary accruals above or equal to 0.*

Table A6

DA<0	Jones	Modified Jones	Kothari	Larcker & Richardson
Market CAP	0.0000	-0.0000	-0.0000	0.0000*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
GROWTH	-0.0264***	0.0008	-0.0076***	0.0010
	(0.0014)	(0.0009)	(0.0006)	(0.0008)
LEVERAGE	-0.2011	-0.3364	-0.1497	0.0398
	(0.1744)	(0.2160)	(0.0996)	(0.0736)
CRISIS	-0.0101	-0.0403***	-0.0107*	-0.0522***
	(0.0119)	(0.0123)	(0.0061)	(0.0147)
MC	0.0275*	-0.0006	0.0029	-0.0002
	(0.0148)	(0.0158)	(0.0068)	(0.0133)
Constant	0.0474	0.1157	0.0537	-0.1034**
	(0.0961)	(0.1182)	(0.0551)	(0.0414)
R^2 within	0.4713	0.0542	0.2531	0.0158
R^2 between	0.0132	0.0000	0.0095	0.0316
R^2 overall	0.3125	0.0000	0.0495	0.0366
Rho	0.5408	0.7008	0.7175	0.6958
Number of groups	182	182	182	182
Observations	1637	1637	1637	1637

Table A6. ***Fixed effects regression analysis with DA<0 as dependent variable, CRISIS and MC as variables for all crisis years and manager changes.***

*Note: Standard errors in parentheses. All standard errors are robust. The stars indicate significance levels (significant at 1%***, 5%** and 10%*). The dependent variable is all observations of discretionary accruals below 0.*

Table A7

	Jones	Modified Jones	Kothari	Larcker & Richardson
Prob > chi2	0.0000	0.0000	0.0000	0.0000

Table A7. ***Hausman test.***
Note: for all four models. Test of H0: difference in coefficients not systematic. If p-value < 0.05 fixed effects was chosen.

Table A8

	Jones	Modified Jones	Kothari	Larcker & Richardson
			VIF	
$1/A_{t-1}$	1.04	1.04	1.07	1.17
ΔREV	1.00			
ΔREV-ΔREC	1.04	1.00	1.51	1.05
PPE		1.04	1.04	1.08
ROA			1.54	
OCF				1.04
MB				1.10
Mean VIF	1.03	1.02	1.29	1.09

Table A8. ***VIF.***
Note: VIF values for all variables in OLS estimation of model (1)-(4).

Table A9

TA	Jones	Modified Jones	Kothari	Larcker & Richardson
$1/A_{t-1}$	87.0864	149.6562**	174.7838***	186.4880
	(65.0453)	(68.8359)	(35.1936)	(125.9264)
ΔREV	0.8525			
	(0.5965)			
ΔREV-ΔREC		-1.1532**	-0.4583**	-1.2680**
		(0.5231)	(0.1768)	(0.5458)
PPE, Net	-0.1538***	-0.1002***	-0.0855***	-0.0009
	(0.0305)	(0.0067)	(0.0044)	(0.0625)
FINANCE	-0.0470**	-0.1142***	-0.0373**	-0.1085***
	(0.0232)	(0.0293)	(0.0188)	(0.0264)
LOAN	-0.0084	-0.0363*	-0.0138	-0.0347
	(0.0214)	(0.0206)	(0.0135)	(0.0223)
COVID	-0.0415*	-0.1096***	-0.0398***	-0.1122***
	(0.0225)	(0.0251)	(0.0107)	(0.0261)
CEO	-0.0061	-0.0344	0.0038	-0.0109
	(0.0196)	(0.0367)	(0.0205)	(0.0331)
CFO	-0.0127	0.0131	0.0300	0.0118
	(0.0262)	(0.0469)	(0.0283)	(0.0540)
ROA			0.7006***	
			(0.0722)	
MB				-0.0029*
				(0.0015)
OCF				0.1913
				(0.5122)
Constant	0.0409**	0.0827***	0.0093	0.0693***
	(0.0174)	(0.0103)	(0.0093)	(0.0171)
R^2 within	0.2825	0.3552	0.7917	0.3635
R^2 between	0.3375	0.2218	0.7038	0.1863
R^2 overall	0.2900	0.3504	0.7851	0.3569
Rho	0.1131	0.1646	0.1836	0.1683
Number of groups	222	222	222	217
Observations	2544	2521	2521	2343

Table A9. ***Fixed effects regression analysis with TA as dependent variable (net value of PPE).***
*Note: Standard errors in parentheses. All standard errors are robust. The stars indicate significance levels (significant at 1%***, 5%** and 10%*). Model 1 to 4 can be found in equation (1)-(4). Net value of PPE instead of gross value of PPE. Gives generally same results as gross value of PPE.*

Figure A1

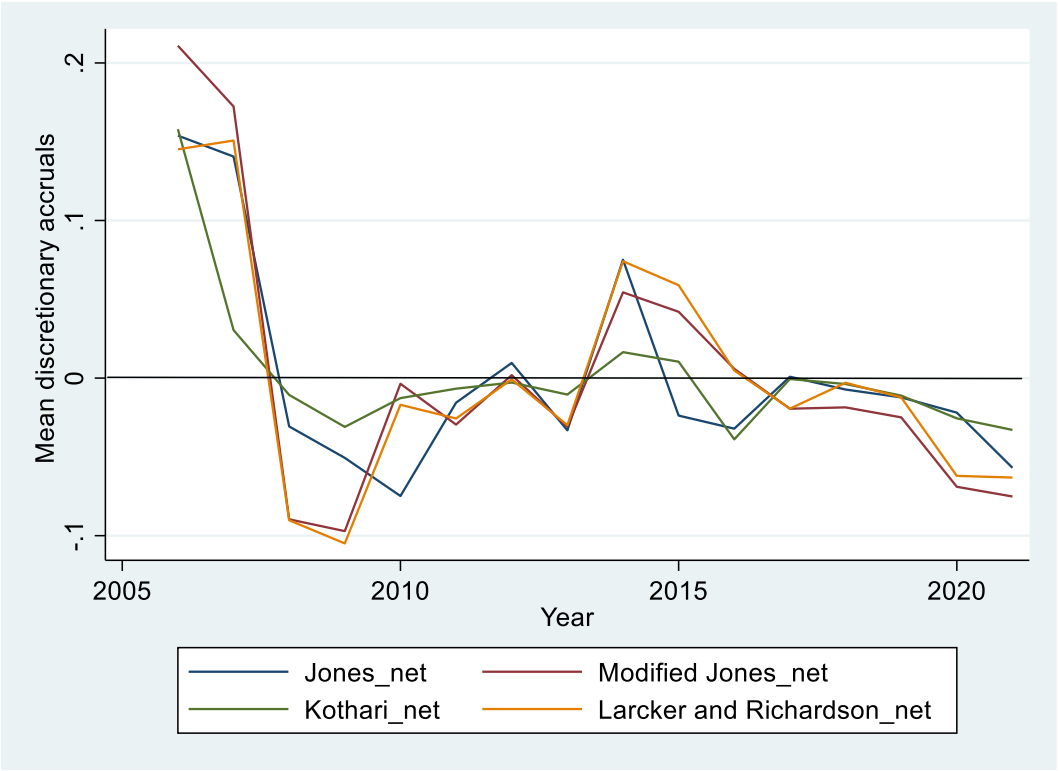


Figure A1. ***Mean discretional accruals trough the sample period 2006-2021 (net value of PPE)***

Note: Jones_net is the residual from fixed firm effects regression of equation (1). Modified Jones_net is the residuals from fixed firm effects regression of equation (2). Kothari_net is the residual from fixed firm effects regression of equation (3). Larcker and Richardson is the residual from fixed firm effects regression of equation (4). Net PPE used instead of gross PPE.

Table A10

Country	Source	Date
England	https://fknol.com/uk/stock/real-estate.php	23.01.2022
Germany	https://fknol.com/de/stock/real-estate.php	22.01.2022
Norway	https://live.euronext.com/nb/markets/oslo/equities/list	21.01.2022
Belgium	https://live.euronext.com/en/markets/brussels/equities/list	22.01.2022
Netherlands	https://live.euronext.com/en/markets/amsterdam/equities/list	20.01.2022
France	https://live.euronext.com/en/markets/paris/equities/list	21.01.2022
Sweden	http://www.nasdaqomxnordic.com/shares	21.01.2022
Denmark	http://www.nasdaqomxnordic.com/shares	21.01.2022
Iceland	http://www.nasdaqomxnordic.com/shares	21.01.2022
Finland	http://www.nasdaqomxnordic.com/shares	21.01.2022

Table A10. ***Sources used to find real estate firms.***