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Abstract

Purpose – This paper examines the connection between appraisals of investment properties and earnings properties in companies from two perspectives: what kind of companies employ the most reputable appraisers and how appraisers produce estimations.
Design/methodology/approach – The research uses annual reports of European Union (EU) publicly traded real estate companies and examines the period 2007–2016.
Findings – The contribution of this study lies in establishing that some indicators and features of real estate companies affect the choice of appraiser and also in illustrating differences in the results of property valuations. In short, smaller companies with weaker performance are less willing to use external valuation, and external appraisers produce more conservative estimations for investment properties.
Practical implications – The research produces beneficial information for investors and other stakeholders interested in real estate industry.
Originality/value – This is the first novel study to examine the link between appraisals of investment properties and earnings properties in companies in detail.

Keywords M48 appraisal type, M41 earnings properties, M48 IFRS
Paper type Research paper

1. Introduction

There has been a great deal of discussion concerning IFRS (International Accounting Standards) and the guidance on investment property when financial statements are made under the disclosure requirements of IAS 40 (International Accounting Standards, Investment Property) and IFRS 13 (International Financial Reporting Standards, Fair Value Measurement). This research stems from the debate among managers, investors, capital market officials, and other stakeholders on the recognition of long-term nonfinancial assets at fair value, rather than at depreciated historical cost. The aim of this paper is to study factors that have received less research attention; that is, the choice of

investment property appraisal, the use of Big 4 auditors in that context, and the endogenous relationship between earnings properties and appraiser choice under IFRS. Few studies have been conducted on the interactions of management with company specialists (Messier, 2018) but those specialists (e.g. appraisers and auditors) can have an influential role in producing financial statements. Specialists employed by real estate companies are important because so many uncertain factors affect the valuation of investment properties.

It is an interesting research area because of the volume of debate on the accuracy of fair-value measures in financial statements. At the same time, those responsible for drafting standards are looking for best practice to produce more useful financial reports. Selected actions and the stakeholders of a company can have a great impact on both that company's income statement and balance sheet.

Pre-IFRS practices in EU region were heterogenous and not standardized from one country to another. In Germany for example, revaluations were not allowed at all while in Greece it was possible to reevaluate fixed assets every four years following a special revaluation index. Under Finnish and Swedish regulation revaluation would be possible if fair values were thinkable to calculate precisely enough. At the same time in Italy and Spain an asset revaluation was allowed only if a special law gives a possibility and in France only if it included all fixed and long-term financial assets (Quagli and Avallone, 2010). Regulation (EC) No. 1606/2002 of the European Parliament and the Council decrees that public companies must apply IFRS from the fiscal year 2005. Under IAS 40, companies can use two models to valuate investment properties: cost and revaluation. From the beginning, some countries (e.g. the United Kingdom) required that investment properties must be valuated using the revaluation model and recording changes in the balance sheet. Some other countries (e.g. Italy) required that investment property be

valuated under the cost model. Several other countries (e.g. France and Germany) also required the cost model in practice because those countries do not separately address reporting for this special tangible asset. Several countries (e.g. Finland) allowed companies to choose either the cost or revaluation model. However, IAS 40 requires companies using the cost model to also disclose investment property fair values in the notes (Muller *et al.*, 2011).

Since the beginning of 2013, real estate companies have also followed the IFRS 13 standard. The new standard provided a framework for measuring fair value and required disclosures about fair-value measurement. IFRS 13 provides a hierarchy of methods for arriving at fair value: Level 1: unadjusted quoted prices for identical assets and liabilities in active markets (preferable); Level 2: other observable inputs for the asset or liability, such as quoted prices in active markets for similar assets or liabilities or quoted prices for identical assets or liabilities in markets that are not active; and Level 3: unobservable inputs for the asset or liability (IASB, 2018).

Estimated fair values could produce an uninformative balance sheet and inaccuracy in income statements, especially if properties are valuated at Level 3. Fair values estimated can also affect trading shares in and out because of unreliable estimations (Penman, 2007). Investment property valuations of the real estate industry are normally categorized as Level 2 or Level 3 valuations (PWC, 2017).

The current research uses annual reports of publicly traded real estate companies from EU member states and covers the period 2007–2016. The starting year of the research was chosen because it is two years after the IFRS regulations became mandatory for publicly traded companies and, thus, the policies of companies would have stabilized by that point. The real estate sector is selected because of the outstanding weight of investment property fair values and of the changes they bring to the balance sheet.

Empirical tests are conducted on a sample of 699 firm-years for publicly traded real estate companies in the EU region.

In contrast to auditing, the whole valuation process is very lightly regulated and it is difficult to find scientific material on it. The interviews with experts working in valuation firms and real estate companies reveal that an appraiser is normally appointed by the board of directors, but typically the appointment follows a suggestion of a suitable appraiser made by management or the incumbent auditor. The responsibility for valuations is normally agreed upon in the assignment. The upper limit is usually the value of the agreement, on condition there is no serious lack of care apparent. The fact is that in the United Kingdom and Central Europe, the level of compensation is usually higher than in the Nordic countries. Today the duration of an appraisal contract is not regulated, and that fact can affect certain actions of appraisers. There have been discussions around regulating such contracts in a similar way to those relating to auditing. There are also no clear rules to call upon if a company is not satisfied with the valuation. An attempt is made to proceed through negotiation in such cases and to ensure that the source information informing the fair value calculations was correct. In the worst case, the company can disregard the valuation, but doing so would create doubt among stakeholders and incur extra costs for the monitored company. Because external well-known appraisers can be considered similar qualified experts to the Big 4 auditors and probably have a similar attitude to the reputation and litigation risk, an assumption can be that they are working under principles of the same kind and they deviate from other appraisers.

In the frictionless world, there are no incentives for companies or appraisers that affect the choice of appraisal or the way the different types of appraiser manage investment property valuations. In the real world, it is typical that successful actors seek their way of

operating with successful famous partners and it is clear that incentives, for example stock option offerings and bonuses for managers, or the terms of covenants, or lower interest rates for companies, can affect their decisions maybe in the valuation process (e.g. Healy, 1985). According to The Netherlands Authority for the Financial Markets (AFM) (2012), in their small sample with external valuations of investment properties, four of seven companies had investment property with a market price of approximately 15 percent below the valuated figure.

The hypothesis tested are if the use of an external appraiser produces more conservative valuations in the fair value accounting of investment properties than undertaking an internal valuation (H_1) and if earnings properties of real estate companies are linked to the type of appraiser who performs the investment property appraisal (H_2).

The main contribution of this study is that the choice of investment property appraisers is affected by some earnings properties. In addition, the valuations proposed by appraisers differ according to whether that appraiser is an external appointment or an internal one. External appraisers produce more conservative estimations than do internal appraisers. The use of internal appraisals indicates increased relative fair value changes. The difference is most clearly illustrated through a comparison with significant results of other less well-known and often commissioned external appraisers. The use of a Big 4 auditor has a very significant reduction impact on relative investment property fair value changes at the 0.01 level. It is interesting to note that the use of both external appraisers and Big 4 auditors affect fair value changes in the same way, although auditors must bear a large litigation and reputation risk (e.g. Khurana and Raman, 2004), while external appraisers can make valuations without concerns over strict regulation.

Nevertheless, other company-specific features like ownership structure and the origin of the company are also significantly linked to the choice of appraiser. Companies with one

dominant owner are more willing to adopt an internal valuation procedure and companies from both the United Kingdom and Central Europe commission more external valuations than companies from Nordic countries.

2. Prior Literature

When we are studying the role of appraisals and their effects on the valuation of material assets, it is interesting to first examine the reasons behind and the incentives involved in the process of adopting an appraiser. The revaluations made under IAS 40 affect both the income statement (the changes of investment property values) and the balance sheet (the amount of total assets). That information is used as a substance in debt contracts, accounting-based debt covenants, and as a guideline in corporate acquisitions as well as in managerial stock-based compensation, stock ownership, and stock option agreements (IASB (2018), Ball (2016)). Both political and economic powers determine the incentives of the players (managers, auditors, boards, regulators, courts, analysts, press, and educators). For example, Ball (2016) argues that earnings management may contribute to financial reports that present an excessively positive opinion of a company's actions and economic situation.

The fair value measurement of IFRS allows stakeholders and managers certain options in their accounting estimates (Ball and Shivakumar, 2015). Generally, fair value manipulation takes one of two forms: trading at period-end to manipulate asset prices in poorly liquid markets (e.g. Heaton *et al.,* 2010) or manipulating fair value estimations when traded prices are unavailable (Watts (2003), Benston (2008)). Managers in listed real estate companies have the opportunity to embrace sales, cost, and expense manipulation (Hou and Li, 2016) or, and perhaps the most important way to embellish source information, selectively use interest and vacancy rates.

Aboody *et al.* (1999) report revaluations reveal changes in the values of assets related to future operating performance, and at least some of them are well-timed. They argue that fixed assets' fair values are not necessarily unreliable, but that revaluations and future performance, returns, and prices may be influenced by many different factors. The same study also shows that the revaluation is significantly positively linked to share prices and returns. Easton, *et al.* (1993) show that the main reason managers revalue assets is to publish fair financial statements, but the second most common motivation is to affect debt-to-equity ratios, perhaps to for reasons connected to debt contracting.

When fair-value measurement gives managers more opportunities to adjust accounts, it creates doubts among stakeholders, and especially among lenders, who can see uncertainties and try to transfer that uncertainty into the interest rate. Ball *et al.* (2015) stated that financial statements presented under IFRS could be less useful in debt contracts, even if they offer more information useful to the valuation process. Li (2010) find that so-called transitory earnings, including asset revaluations, are rather less valuable in measuring company performance for debt contracting than the net income approach, which has a ruling role in efficient contracting, especially in the case of longer loan maturity. Christensen and Nikolaev (2012) reported that financial covenants can be shared between two different mechanisms. Capital covenants enforce expensive limitations on the capital structure and performance covenants involve comparable accounting information being provided. Both earnings variables and asset measures are then less efficient under IFRS. Ball *et al.* (2015) show a significant decrease in accounting-based debt covenants after mandatory IFRS adoption. Demerjian (2011) shows that when standard setting has moved toward a balance sheet approach and is predicted to be less useful for contracting, borrowers with higher volatility ratios are less likely to have balance sheet-based covenants. Nellessen and Zuelch (2010) explain that

there is realistic doubt over whether fair values of investment properties are inaccurate. They argue that the process by which fair values are derived is open to criticism. The human nature of the appraisals, the nature of the process, and the structure of the property market where appraisals are operating can increase the likelihood of biased estimations.

Brown and Matysiak (2000) tell important reasons for inexact valuation. They show that only the small proportion of properties is valuated per year because of lower costs reporting no change or minor changes so that an appraiser does not change values at all, but over time the need for change will cumulate. In addition to the courage of the appraiser to change investment property values toward the realistic market level because of the customer's dissatisfaction, that uncertainty can bring a smoothing effect that devalues the true volatility of returns on the market. Pinto and Pais (2015) find that for example under great market pressure to meet financial reporting purposes managers are more willingly to smooth book value returns.

Nevertheless, there are many studies arguing IFRS regulation has developed accounting and the whole valuation process. Aharony *et al.* (2010) report the improved value relevance of asset revaluations that can lead to improved debt service capacity and Barth *et al.* (2012) report increased value relevance in financial statements made under IFRS. Herrmann *et al.* (2006) argue that fair value measures for property, plant, and equipment are more reflective of historical cost based on the features of analytical value, feedback value, timeliness, neutrality, comparability, and reliability. In summary, the apparent incoherence mentioned above increases the importance of the choices made by an investment property appraiser.

It is difficult to find research on the incentives influencing asset appraisal and their effect on earnings quality. The International Valuation Standards Council (IVSC) (2017) has

identified globally accepted principles and definitions. Professional appraisers may be involved in reporting the value of company assets and liabilities for use in financial statements, or in assisting the auditor of the company's statements in defining whether the values reported by the company are realistic and reliable. Professional appraisers need guidance on how they can help both auditors and companies during the process. The IVSC emphasizes that some appraisers are worried about developing too close a relationship with a client (as are auditors) because doing so can threaten their independence and neutrality. It is generally known that the work of appraisers is less regulated than that of auditors, as demonstrated, for example, by the fact that the length of the appraisal agreement is not yet monitored. That can tempt appraisers to offer valuations that please the management and the company, and will secure a contract extension.

Appraisers often use the international standards promoted by The Royal Institution of Chartered Surveyors (RICS). Professionals holding RICS qualifications may use the designations AssocRICS (Associate), MRICS (Member), FRICS (Fellow) and they are also known as chartered surveyors. RICS Valuation - Global Standards (known as the *Red Book*) contains rules, best practice guidance, and related commentary on all asset valuations (RICS, 2017). The Red Book follows the International Valuation Standards, which ensures that RICS members follow regular practices internationally. Adhering to the procedures of the Red Book is mandatory for all RICS members and also normally referred to by non-RICS appraisers. There are also some other valuation standards and guidelines in the European real estate sector such as the European Group of Valuers' Associations (TEGoVA) and local guidelines including instructions published by Authorised Property Valuers (AKA) in Finland. The European Public Real Estate Association (EPRA) is the best-known institution in this sector (Nellessen *et al.,* 2010). Both global investment markets and international consulting/valuating firms (such as

CBRE, DTZ and JLL) are some of the drivers of using international valuation standards instead of local guidelines (Bellman and Lind, 2019).

3. Methodology and Data

3.1. Real estate companies in the EU

The EU consists of 28 member states, with a collective commercial real estate market value of approximately 6.5 trillion euros (2017). The value of the listed real estate companies is estimated at 350 billion euros (EPRA, 2017). The number of EPRA member companies in Europe was 104 during 2017. The majority of investment properties comprise office buildings, shopping centers, and industrial buildings. Real estate companies acquire (purchase, lease, and develop), sell, and manage investment property to generate profits through rents or transactions. Companies in this sector are both domestic and, more often, international.

I have found no other recent studies examining the effects and prevalence of the appraisal choice in the real estate industry under IFRS. The business of the real estate industry under IAS 40 and IFRS 13 does however have some specific features; for example, a large portion of investment property on the balance sheet normally signifies a long life-cycle of properties, that creates considerable uncertainty over the value of a real estate portfolio and makes the chosen valuation procedure very significant in terms of both the income statement and balance sheet.

3.2. Methodology development

Under IAS 40.75, company annual reports must record the extent to which the fair value of investment property is based on a valuation and the efforts of a qualified independent appraiser to check the company's calculations and basic information. The valuation of property can also be conducted as an internal process. This study examines whether a

large, well-known, external appraiser (*VALEXTL*), a less prominent external appraiser (*VALEXTO*), or a valuation without an external appraiser (NO*VALEXT*) has a link with the earnings properties of real estate companies or affects the level of investment property changes in financial statements. A large, well-known appraiser of property is in this case an appraiser that has been used at the beginning of a period three or more times per year in companies in the sample. There are six appraisers of that type (Allsop LLP, CBRE, DTZ (from 2015 together with Cushman & Wakefield), Forum Fastighetsekonomi Ab, Jones Lang LaSalle, and Lambert Smith Hampton[1]). Some are mainly local actors, such as Forum Fastighetsekonomi Ab, while CBRE, for example, is a global appraisal company. The names of appraisers are collected from the notes of annual reports and are encoded as an external appraisal if even a part of assets are evaluated by external appraisals. The entire sample comprises 26 companies conducting valuations of investment properties and the large ones have a collective market share of almost 50 percent. The number of valuation companies that valuated only one real estate company was 13, while seven valuated two real estate companies. In this study, external valuation is split into two parts, large well-known and less prominent valuation companies.

Logically, the choice of the appraisal is an endogenous process. It is possible that the real estate companies with the best performance are willing to choose a large, renowned, and probably more reliable appraiser whose estimations do not result in over- or under-valuations. On the other hand, more local appraisers can also have a better professional knowledge of local markets (e.g. Kahr and Thomsett, 2006), but in this study it is assumed that particularly large appraisers could act like Big 4 auditors and avoid (e.g. DeAngelo (1981), Francis and Krishnan (1999), Khurana *et al*. (2004), Liao and Radhakrishnan (2016)) reputation and litigation risk with more precisely produced conservative valuations.

Companies, owners, and managers, who have an important role in choosing the form of appraisal, can have their own incentives depending for example on the company's profitability or leverage. The first two multinomial logistic regressions (Models 1 and 2) contain important earnings property variables and basic characteristics of companies testing the link between the appraisal type and company-specific features. The dependent dummy variable (*VAL*) reflects the variables *NOVALEXT*, *VALEXTO*, and *VALEXTL* (descriptions after models). A variable *LEADVAL* try to current earnings properties will affect the choice of appraiser the following year.

The models control for firm size by including the variable *LNTA* and the performance of the company by including *ROA*, *LEV*, *SALESGR*, and *CFO/TA*. For example Ahmed *et al.* (2002) argue that profitable firms tend to favor more conservative accounting; however, large companies are likely to incur large political costs, which encourages them to ensure they adopt a moderate form of accounting (Watts and Zimmerman, 1978). Conservatism of accounting is controlled by the market-value based measure market-to-book ratio, *MTB*; positive values for which indicate greater conservatism (Roychowdhury and Watts, 2007).

A variable *BIG4* is included in the regression because several studies show using Big 4 auditors promotes greater conservatism (e.g. Chung *et al.* (2014), Francis and Wang (2008)). Prior studies show that Big 4 auditors are concerned about their exposure to litigation and risks to their reputation (e.g. Francis *et al.* (2008), Liao *et al.* (2016)), one consequence of which is that they recommend conservative accounting practices to their clients.

Prior studies have clarified that overall accounting decisions are affected, for example, by arrangements, taxation, litigation, regulation, and managerial decisions, as well as

ownership structure (Watts (2003), LaFond and Watts (2008)), accordingly, a variable *OSHIP* is included in the regression. One controlling shareholder can attempt to advance its own interests by manipulating reported performance (Hope, 2013). Even at the EU country level, culture, legal history, traditions, governance, investor protection, and public enforcement regimes are different, which can have an impact on accounting; however, standardization can reduce the extent of such separation. For example, André and Filip (2012) find weak evidence that insider economies with weak enforcement continue to exhibit a lower level of conservatism and the reduction in conservatism is most significant in countries that diverge most from the IFRS standards. According to La Porta *et al.* (1998), the countries included in this kind of sample have different legal and enforcement policies. Included in the multinomial logistic regressions are indicator variables for the United Kingdom and Central European origin as controls (*ORI1*, *ORI2*). Companies from Nordic countries, according to the classification by La Porta *et al.* (1998), are in the reference group (Denmark, Finland, and Sweden). All companies are based in the EU.

Models 3–6 examine the actions of appraisers after they are hired in the endogenous process. It can be assumed that companies have reasons for hiring a certain kind of appraiser. The models use the relative change of estimated values in real estate assets (*DFV/FV*) as a dependent variable and typical company-specific variables to control the second-stage self-model, where the inverse Mills ratios are included (Models 4 and 6). Prior studies often used market-to-book ratio (MTB) or net asset value (NAV) to estimate the validity of property valuations. The variable *DFV/FV* can more precisely measure the validity of the change in investment properties without bias because there is no need to utilize share prices that are affected by many other factors. The variable *DFV/FV* shows how moderate or conservative investment property valuations can be:

$$VAL_{it} = \beta_0 + \beta_1 * BIG4_{it} + \beta_2 * ORI1_{it} + \beta_3 * ORI2_{it} + \beta_4 * OSHIP_{it} + \beta_5 * LNTA_{it} + \beta_6 * ROA_{it} + \beta_7 * LEV_{it} + \beta_8 * SALESGR_{it} + \beta_9 * CFO/TA_{it} + \beta_{10} * MTB_{it} + \sum_{t=2008}^{2016} \delta_t year_t + \varepsilon_{it} \quad (1)$$

$$LEADVAL_{it} = \beta_0 + \beta_1 * BIG4_{it} + \beta_2 * ORI1_{it} + \beta_3 * ORI2_{it} + \beta_4 * OSHIP_{it} + \beta_5 * LNTA_{it} + \beta_6 * ROA_{it} + \beta_7 * LEV_{it} + \beta_8 * SALESGR_{it} + \beta_9 * CFO/TA_{it} + \beta_{10} * MTB_{it} + \sum_{t=2008}^{2016} \delta_t year_t + \varepsilon_{it} \quad (2)$$

$$DFV/FV_{it} = \beta_0 + \beta_1 * NOVALEXT_{it} + \beta_2 * BIG4_{it} + \beta_3 * ORI1_{it} + \beta_4 * ORI2_{it} + \beta_5 * OSHIP_{it} + \beta_6 * LNTA_{it} + \beta_7 * ROA_{it} + \sum_{t=2008}^{2016} \delta_t year_t + \varepsilon_{it} \quad (3)$$

$$DFV/FV_{it} = \beta_0 + \beta_1 * NOVALEXT_{it} + \beta_2 * BIG4_{it} + \beta_3 * ORI1_{it} + \beta_4 * ORI2_{it} + \beta_5 * OSHIP_{it} + \beta_6 * LNTA_{it} + \beta_7 * ROA_{it} + \beta_8 * MILLSNOEXT_{it} + \sum_{t=2008}^{2016} \delta_t year_t + \varepsilon_{it} \quad (4)$$

$$DFV/FV_{it} = \beta_0 + \beta_1 * VALEXTO_{it} + \beta_2 * VALEXTL_{it} + \beta_3 * BIG4_{it} + \beta_4 * ORI1_{it} + \beta_5 * ORI2_{it} + \beta_6 * OSHIP_{it} + \beta_7 * LNTA_{it} + \beta_8 * ROA_{it} + \sum_{t=2008}^{2016} \delta_t year_t + \varepsilon_{it} \quad (5)$$

$$DFV/FV_{it} = \beta_0 + \beta_1 * VALEXTO_{it} + \beta_2 * VALEXTL_{it} + \beta_3 * BIG4_{it} + \beta_4 * ORI1_{it} + \beta_5 * ORI2_{it} + \beta_6 * OSHIP_{it} + \beta_7 * LNTA_{it} + \beta_8 * ROA_{it} + \beta_9 * MILLSEXTO_{it} + \beta_{10} * MILLSEXTL_{it} + \sum_{t=2008}^{2016} \delta_t year_t + \varepsilon_{it} \quad (6)$$

Where:

DFV/FV_{it}	Change in fair value of investment property divided by fair value of investment property and multiplied by -1 at the end of the fiscal year *t*
VAL_{it}	A dependent variable taking the value 1 if a company is not using an external property appraiser, the value 2 when using an external, but not a large appraiser, and the value 3 when using an external large appraiser in the fiscal year *t*
$LEADVAL_{it}$	A lead dependent variable taking the value 1 if a company is not using an external property appraiser, the value 2 when using an external, but not a large, property appraiser, and the value 3 when using an external large property appraiser in the fiscal year *t+1*
$NOVALEXT_{it}$	An indicator variable taking the value 1 if a company is not using an external property appraiser in the fiscal year *t*
$VALEXTO_{it}$	An indicator variable taking the value 1 if a company is using an external but not a large property appraiser in the fiscal year *t*
$VALEXTL_{it}$	An indicator variable taking the value 1 if a company is using an external large property appraiser in the fiscal year *t*
$BIG4_{it}$	An indicator variable taking the value 1 if a company is using Big 4 auditor in the fiscal year *t*
$ORI1_{it}$	An indicator variable taking the value 1 if a company is located in the United Kingdom

$ORI2_{it}$	An indicator variable taking the value 1 if a company is located in Central European EU countries
$OSHIP_{it}$	An indicator variable taking the value 1 if the biggest shareholder owns more than 50 percent of shares in the fiscal year *t*
$LNTA_{it}$	Logarithm of total assets (tEUR) in the fiscal year *t*
LEV_{it}	The total debt divided by total assets in the fiscal year *t*
ROA_{it}	Return on assets in the fiscal year *t*
$SALESGR_{it}$	The growth of sales (%) in the fiscal year *t*
CFO/TA_{it}	Cash flows from operations divided by total assets in the fiscal year *t*
MTB_{it}	Market value of the company (a price at the end of year *t* multiplied by the number of shares) divided by the book value of company (total assets minus liabilities) at the end of the fiscal year *t*
MILLSX	The inverse Mills' ratio of different appraisal types

The data are derived from 121 real estate companies in EU countries covering the period 2007–2016 and after adjustments and removing defective data, 699 firm-years remain. The sample and all companies in the sample use the IAS 40 standard reporting fair values in disclosures, and investment property should make up more than half of the total property plant and equipment in 2007 (the first year studied). The continuous variables are winsorized one percent (i.e. the transformation of statistics to reduce the effect of extreme values, here all outliers are set between 1st and 99th percentile of the data). Both years and companies are clustered in regressions and the models have year fixed effects.

The data are collected from Bureau van Dijk Orbis, Thomson Reuters Worldscope, and manually from annual reports. Most of the dummy variables are collected from annual reports, ownership data from Orbis, and financial ratios from Worldscope.

[Insert table 1 here]

4. Empirical Results

4.1. Descriptive statistics

Table 2 summarizes the dependent and independent variables. The ratio of fair value change in the investment properties (*DFV/FV*) varies between -43.5 and 31.8 percent while the mean is 0.3 percent. The mean market value of companies is only 74.2 percent of their book values in accounts (*MTB*). That result conforms the research of Nellessen *et al.* (2010) and can cause friction in the market. Some problems can occur during the economic downturn, acquisitions between real estate companies can be more complicated and bankers can be less confident.

[Insert table 2 here]

Firm-years of companies using an external appraisal account for nearly 90 percent of all firm-years in the sample and the percentage of large external appraisers is approximately 47 percent. The appraisers are those used in this sample in the year 2007 three or more times. The value for companies using Big 4 auditors is over 72 percent, and one large owner is present in approximately 37 percent of firm-years. Slightly more than 20 percent of companies come from the United Kingdom while more than 55 percent come from Central European EU countries. Appraisal contracts are quite long in real estate industry, but during the time period of this sample there are 46 changes between large external

appraisers and other appraisers likewise 34 changes between the internal and external appraisal.

The total assets held per company varies between EUR 4.8 million and EUR 18, 255.9 million and the mean is almost EUR 700 million. The mean of leverage ratio (*LEV*) ratio is 0.47 and there are companies without (or almost without) debts. The mean of return on assets ratio (*ROA*) is approximately 3.78 and the growth of sales is approximately 22.56 percent per year. The variable *CFO/TA* (cash flows from operations divided by total assets) has a mean of 0.016 while the range is from -0.201 to 0.162.

Table 3 shows the Pearson correlations of the variables used in this paper. The highest correlation is -0.73 between external but not a large property appraisers (*VALEXTO*) and external large property appraiser (*VALEXTL*), which is understandable. As the second highest correlation -0.60 is between companies situated in the United Kingdom (*ORI1*) and Central Europe (*ORI2*), variables in this format can be used.

[Insert table 3 here]

4.2. Results from regressions

Table 4 presents estimates for dependent variables *VAL* and *LEADVAL,* which reflect the appraiser type, as the result of multinomial logistic regressions (Models 1-2) and Table 5 the relative change in fair value of investment property (*DFV/FV*) as a result of both OLS regression and selection models with the inverse Mills' ratio (*MILLSX*) (Models 3-6). The R^2 values of regressions are 20–36 percent. All regressions are clustered on both company and year. The models have year fixed effects.

[Insert table 4 here]

As described earlier, this research includes testing the seldom-observed investment property appraisal choice together with the connection with the earnings properties and firm-specific features of companies. First this study examines what kind of companies will hire a certain type of appraiser. Panel B shows that when *VAL* is used as a dependent variable with 699 firm-years, the internal appraiser (*NOVALEXT*) is adopted in smaller, more often indebted companies with a slower growth rate than in a comparison category. In addition, companies who use an external (but less often used) appraiser (*VALEXTO*) seem to be smaller than companies that choose the often used well-known appraiser (*VALEXTL*) defined as a base outcome. There is some evidence that companies with less conservative accounting measured by market-to-book ratio (*MTB*) more commonly have *VALEXTO* appraisers than *VALEXTL* ones.

The companies who adopt the *NOVALEXT* or *VALEXTO* valuation options less frequently commission Big 4 auditing (*BIG4*) and there seems to be a link between the Big 4 auditing and the use of an external large investment property appraiser. That test expresses the association between one large share owner of company and a disinclination to commission an external valuation. The data also reveal some country-specific or mimicking features, so especially in the UK, there are more real estate companies using an external large (*VALEXTL*) investment property appraiser.

The second test (Model 2) investigates if there are some features of companies that can predict the choice of appraisal in the future; to assist, a lead valuation dummy (*LEADVAL*) is used as a dependent variable. Investment property valuations contracts are normally long-lasting and changing the appraiser is not easily done. The results from Model 2 are similar to those of Model 1; but in Model 2, the variable *ROA* (return on assets) becomes significant at the 0.05 level, which shows that companies with inferior performance are more willing to have an internal valuation routine in the following years.

Table 5 illustrates what kind of relative fair values the different types of appraisers produce for real estate companies. The variable *DFV/FV* (the relative change in fair value of investment property) is used as a dependent variable. Multiplying the variable by -1 produces larger values that reveal some evidence of more extensive conservatism in accounting. Because the choice of appraisal can be endogenous, in this study includes the inverse Mills' ratio (*MILLSX*)—which controls for potential self-selection bias in the second stage—as an additional independent variable. Although some multicollinearity is evident in the selection model, it is still well specified, the main observable variables (*NOVALEXT, VALEXTO, VALEXTL,* and *BIG4*) are dummies and remain stable in all regressions (Lennox *et al.* 2012).

[Insert table 5 here]

In Panel C[2], a sample with 575–597 firm-years covering the period 2007–2016, *DFV/FV* indicates that companies not using external appraisers (*NOVALEXT*) to valuate their investment property results in less conservative values. The variable of the internal appraiser is significant at the 0.1 level and the coefficient has a negative value of -0.017 in Model 4. The result is notable because the two first models applied in this study show companies with weaker performance are more likely to choose an internal valuation instead of an external one, and presumably the changes to the fair values are less extensive. Likewise, in Model 4, the *BIG4* variable is significant (at least at the 0.05 level), and the sign is opposite to that of the *NOVALEXT* appraisal type. It is noteworthy that *ROA* records smaller significant values (at least at the 0.01 level) compared with higher investment property values.

Models 5 and 6 demonstrate that the use of an external but not large appraiser (*VALEXTO*) produces more conservative fair values of investment property. The coefficients of the

external large appraiser (*VALEXTL*) show the same kind of tendency with positive coefficients, but they are not significant. The Wald test slightly shows that *VALEXTO*, *VALEXTL*, and *BIG4* differ from each other. *BIG4* records positive coefficients showing conservative estimations at the 0.05 level.

As a supplementary test, the effect of the variable net asset value (NAV) was tested as a dependent variable in place of *DFV/FV*. NAV is a relatively new ratio in the real estate industry, and is still used mainly in top-level companies and reported on the whole very sketchily among the sample companies. The sample size is small and almost all companies employ external valuations, which accounts for why the variable was calculated using the share prices of companies. These results do not offer any significant appraisal type results from the dataset. Instead, the variable *BIG4* records negative coefficients at the 0.01 level, showing an effect on the more conservative NAV ratios.

In summary, this study's assumptions from effects on earnings properties to the choice of appraisal and differences in the results produced by different types of appraisers are relevant. Therefore, the results support Hypotheses 1 and 2.

5. Conclusions

This study analyzes the role of investment property appraisers and their effect on the properties of earnings in two directions in a sample of European real estate firms using the fair value model. It is a research analyzing a single but important industry. One topic is the question of the kind of features that could lead real estate companies to adopt a particular type of appraiser. Another issue examined is how the appointed appraisers then affect the firm's accounts. The sample covers the period 2007–2016 and therefore includes years marked by both upward turns and recession in the European economy.

The starting point for the analysis was the intent to examine a seldom-measured factor, companies' choice of appraisal. The findings reveal that the way in which companies organize the valuation of investment properties is to some extent a result of the company's features; in addition, the evaluations of appointed appraisers differ. Among company-specific features that influence the choice of appraisal the most significant impacts are the size of the company, its current auditors being part of the Big 4, and the company' s country of origin. A firm opting against an external valuation is likely to be influenced by leverage and ownership structure, too. When companies make decisions relating to the future, return on assets also affects the decision whether to commission an external valuation.

With regard to another main topic, there is evidence that the relative changes to the fair value of investment properties differ depending whether the value is a result of an external appraisal or an internal one. External appraisers valuate investment properties more conservatively. Their actions are similar in direction to the work of Big 4 auditors, which is important to note, because both are specialist stakeholders of companies, but only auditing is stringently regulated. The results show a clear distinction between decisions made by internal appraisers and those of Big 4 auditors.

Prior research show some contradictory results concerning the effects of conservative accounting on the development of companies. For example Gigler *et al.* (2009) find that accounting conservatism actually decreases the efficiency of debt contracts, contrary to many earlier studies (e.g. Watts, 2003). On the other hand, García Lara *et al.* (2016) conclude that conservative companies invest more and have less overinvestments.

Because the variances in the evaluations appear between the different types of appraisers, it is important that the information has been presented as precisely as possible in notes.

Standard-setters could still sharpen recording demands: for example how, how often (every quarter or once a year) and what percentage of the whole investment property is valued external. This might ease the decision-making of stakeholders (for example the investors, financiers). One big question to be thought could be if the external appraisal should be mandatory, because the difference between internal and external valuation seems to be significant.

An interesting option for future research would be to concentrate on the same kind of routines in a certain country. Reasons for mimicking other companies can include local regulations or merely habit. Many companies even use the same sentences in the notes reporting on the valuation process. It would also be interesting to examine how the company's current auditor affects the choice of investment property appraisal.

Notes

1. Revenues of large valuation companies: International companies CBRE USD 14.2 billion (2017), Cushman & Wakefield (DTZ) USD 6.9 billion (2017), Jones Lang LaSalle EUR 6.8 billion (2016) and local market-leaders Allsop LLP USD 52 million (2017), Forum Fastighetsekonomi Ab SEK 59 million (2016) and Lambert Smith Hampton USD 113 million (2017). The revenues of international companies in particular also include many other income streams such as those from consulting and auctions.
2. The first stage probit regressions (NOVALEXT, VALEXTO and VALEXTL as a dependent variable) use the same independent variables as Model 1, give similar results, and are therefore not reported. When the interaction variables VALEXTO*ROA and VALEXTL*ROA are included in Panel C they are significant at the 0.05 level and have opposite signs: VALEXTO has a bigger and

VALEXTL a smaller effect when profitability is better. When in Panel C ROA is replaced with ROA before the fair value change of investment property, the variable NOVALEXT takes a negative coefficient at the 0.1 level.

References

Aboody, D., Barth, M. E. and Kasznik, R. (1999), "Revaluations of fixed assets and future firm performance: Evidence from the UK", *Journal of Accounting and Economics*, Vol. 26 No. 1-3), pp. 149-178. https//doi.org/10.1016/S0165-4101(98)00040-8

Aharony, J., Barniv, R. and Falk, H. (2010), "The impact of mandatory IFRS adoption on equity valuation of accounting numbers for security investors in the EU", *European Accounting Review,* Vol. 19 No. 3, pp. 535-578. https//doi 10.1080/09638180.2010.506285

Ahmed, A. S., Billings, B. K., Morton, R. M. and Stanford-Harris, M. (2002), "The role of accounting conservatism in mitigating bondholder–shareholder conflicts over dividend policy and in reducing debt costs", *The Accounting Review*, Vol. 77 No. 4, pp 867-890. https//doi.org/10.2308/accr.2002.77.4.867

André, P. and Filip, A. (2012), "Accounting conservatism in Europe and the impact of mandatory IFRS adoption: Do country, institutional and legal differences survive?" *SSRN Electronic Journal,* available at: https://www.researchgate.net/publication/228318404 (accessed 10 November 2018).

Ball, R. (2016), "IFRS – 10 years later", *Accounting and Business Research,* Vol. 46 No. 5, pp. 545-571. https//doi.org/10.1080/00014788.2016.1182710

Ball, R., Li, X. and Shivakumar, L. (2015), "Contractibility and transparency of financial statement information prepared under IFRS: Evidence from debt contracts around IFRS adoption", *Journal of Accounting Research,* Vol. 53 No. 5, pp. 915–963. https://doi.org/10.1111/1475-679X.12095

Barth, M. E., Landsman, W. R., Lang, M. and Williams, C. (2012), "Are IFRS-based and US GAAP-based accounting amounts comparable?", *Journal of Accounting and Economics,* Vol. 54 No. 1, pp. 68-93. https://doi.org/10.1016/j.jacceco.2012.03.001

Bellman, L and Lind, H. (2019), "Valuation standards and methods: are Sweden's (still) different?", *Journal of European Real Estate Research*, Vol. 12 No. 1, pp. 79-96. https://doi.org/10.1108/JERER-04-2018-0020

Benston, G. J. (2008), "The shortcomings of fair-value accounting described in SFAS 157", *Journal of Accounting and Public Policy,* Vol. 27 No. 2, pp. 101-114. https://doi.org/10.1016/j.jaccpubpol.2008.01.001

Brown, G. R. and Matysiak, G. A. (2000), "Sticky valuations, aggregation effects, and property indices", *The Journal of Real Estate Finance and Economics,* Vol 20 No. 1, pp. 49-66. https://doi.org/10.1023/A:1007879805481

Christensen, H. B. and Nikolaev, V. V. (2012), "Capital versus performance covenants in debt contracts", *Journal of Accounting Research,* Vol. 50 No. 1, pp. 75-116. https://doi.org/10.1111/j.1475-679X.2011.00432.x

Chung R., Firth M., Kim J. B. and Pang L. (2014), "Big 4 conservatism around the world", in Boubaker, S. and Nguyen, D. (Ed.) *Corporate Governance in Emerging Markets. CSR, Sustainability, Ethics & Governance.* Springer, Berlin, Heidelberg, pp. 197-238.

DeAngelo, L. E. (1981). "Auditor size and audit quality", *Journal of Accounting and Economics*, Vol. 3 No. 3, pp. 183-199. https://doi.org/10.1016/0165-4101(81)90002-1

Demerjian, P. R. (2011), "Accounting standards and debt covenants: Has the 'balance sheet approach' led to a decline in the use of balance sheet covenants?", *Journal of Accounting and Economics,* Vol. 52 No. 2-3, pp. 178-202, available at SSRN: https://ssrn.com/abstract=1892236

Easton, P. D., Eddey, P. H. and Harris, T. S. (1993), "An investigation of revaluations of tangible long-lived assets", *Journal of Accounting Research,* Vol. 31 (Studies on International Accounting), pp.1-38. DOI: 10.2307/2491161

The European Public Real Estate Association (EPRA) (2017), "*Total markets table*", available at: http://www.epra.com/application/files/6215/0592/3119/EPRA_Total_Markets_Table__June_2017.pdf (accessed 10 November 2018).

Francis, J. R. and Krishnan, J. (1999). "Accounting Accruals and Auditor Reporting Conservatism", *Contemporary Accounting Research*, Vol. 16 No. 1, pp. 135-165. https://doi.org/10.1111/j.1911-3846.1999.tb00577.x

Francis, J. R. and Wang, D. (2008), "The joint effect of investor protection and Big 4 audits on earnings quality around the world", *Contemporary Accounting Research,* Vol. 25 No. 1, pp. 157-191. https://doi.org/10.1506/car.25.1.6

García Lara, J. M., García Osma, B. and Penalva, F. (2016). "Accounting conservatism and firm investment efficiency", *Journal of Accounting and Economics*, Vol. 61 No. 1, pp. 221-238. https://doi.org/10.1016/j.jacceco.2015.07.003

Gigler, F., Kanodia, C., Sapra, H. and Venugopalan, R. (2009). "Accounting Conservatism and the Efficiency of Debt Contracts", *Journal of Accounting*

Research, Vol. 47 No. 3, pp. 767-797. https://doi.org/10.1111/j.1475-679X.2009.00336.x

Healy, P. M. (1985), "The effect of bonus schemes on accounting choices", *Journal of Accounting and Economics,* Vol. 7 No. 1-3, pp. 85-107. https://doi.org/10.1016/0165-4101(85)90029-1

Heaton, J. C., Lucas, D. and McDonald, R. L. (2010), "Is mark-to-market accounting destabilizing? Analysis and implications for policy", *Journal of Monetary Economics,* Vol. 57 No. 1, pp. 64-75. https://doi.org/10.1016/j.jmoneco.2009.11.005

Herrmann, D., Thomas, W. B. and Saudagaran, S. M. (2006), "The quality of fair value measures for property, plant, and equipment", *Accounting Forum,* Vol. 30 No. 1, pp. 43-59. https://doi.org/10.2139/ssrn.312150

Hope, O-K. (2013), "Large shareholders and accounting research", *China Journal of Accounting Research,* Vol. 6 No. 1, pp. 3-20. https://doi.org/10.1016/j.cjar.2012.12.002

Hou, X. and Li, X. (2016), *"The influence of listed real estate companies' competition to real earnings management",* presentation in International Conference on Construction and Real Estate Management 2016, Edmonton, Canada, available at: https://doi.org/10.1061/9780784480274.110

The International Accounting Standards Board (IASB) (2018), "*The Conceptual Framework for Financial Reporting"*, available at: http://eifrs.ifrs.org/eifrs/ViewContent?num=0&fn= Conceptual_Framework (accessed 10 November 2018).

The International Valuation Standards Council (IVSC) (2017), "*International Valuation Standards 2017"*, available at: http://www.cas.org.cn/docs/2017-01/20170120142445588690.pdf (accessed 10 November 2018).

Kahr, J. and Thomsett, M. C. (2006). Real Estate Market Valuation and Analysis. John Wiley & Sons 2006.

Khurana, I. K. and Raman, K. K. (2004), "Litigation risk and the financial reporting credibility of Big 4 versus Non-Big 4 audits: Evidence from Anglo-American countries", *The Accounting Review,* Vol. 79 No. 2, pp. 473-495. https://doi.org/10.2308/accr.2004.79.2.473

LaFond, R. and Watts, R. L. (2008), "The information role of conservative financial statements", *The Accounting Review*, Vol. 83 No. 2, pp. 447-478. https://doi.org/10.2308/accr.2008.83.2.447

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. (1998), "Law and finance", *Journal of Political Economy,* Vol. 106 No. 6, pp.1113-1155. DOI:10.1086/250042

Lennox, C. S., Francis, J. R. and Wang, Z. (2012), "Selection models in accounting research", *The Accounting Review,* Vol. 87 No. 2, pp. 589-616. https://doi.org/10.2308/accr-10195

Li, N. (2010), "Negotiated measurement rules in debt contracts", *Journal of Accounting Research,* Vol. 48 No. 5, pp. 1103-1144. https://doi.org/10.1111/j.1475-679X.2010.00386.x

Liao, P-C. and Radhakrishnan, S. (2016), "The effects of the auditor's insurance role on reporting conservatism and audit quality", *The Accounting Review,* Vol. 91 No. 2, pp. 587-602. https://doi.org/10.2308/accr-51167

Messier Jr., W. F. (2018), "*Task level research within the audit process: An update*", presentation in 7th Workshop on Audit Quality, SDA Bocconi, 2018.

Muller III, K. A., Riedl, E. J. and Sellhorn, T. (2011), "Mandatory fair value accounting and information asymmetry: Evidence from the European real estate industry", *Management Science, Vol.* 57 No. 6, pp. 1138-1153. https://doi.org/10.1287/mnsc.1110.1339

Nellessen, T. and Zuelch, H. (2010), "The reliability of investment property fair values under IFRS*", Journal of Property Investment & Finance,* Vol. 29 No. 1, pp. 59-73. DOI 10.1108/14635781111100209

The Netherlands Authority for the Financial Markets (AFM) (2012), "*Valuation and disclosure of investment property: Supervision of financial reporting",* October 2012, available at: https://www.afm.nl/~/profmedia/files/doelgroepen/effectenuitgevende-ondernemingen/ financiele-verslaggeving/2012/engels/themaonderzoek-ias40.pdf%3Fla%3Den&prev=search (accessed 10 November 2018).

Penman, S. H. (2007), "Financial reporting quality: is fair value a plus or a minus?", *Accounting and Business Research*, Vol 37 No. sup1, pp. 33-44. https://doi.org/10.1080/00014788. 2007.9730083

Pinto, I. and Pais, M. (2015), "Fair value accounting choice", *Journal of European Real Estate Research*, Vol. 8 No. 2, pp. 130-152. https://doi.org/10.1108/JERER-09-2014-0032

PriceWaterhouseCoopers (PWC) (2017), "*Applying IFRS for the real estate industry*", available at: https://www.pwc.com/gx/en/audit-services/ifrs/publications/applying-ifrs-for-the-real-estate-industry.pdf (accessed 10 November 2018).

Quagli, A. and Avallone, F. (2010), "Fair value or cost model? Drivers of choice for IAS 40 in the real estate industry, *European Accounting Review*, Vol. 19 No. 3, pp. 461-493. DOI: 10.1080/09638180.2010.496547

Royal Institution of Chartered Surveyors (RICS) (2017), "*RICS Valuation – Global Standards 2017"* (the 'Red Book'), available at: http://www.rics.org/uk/upholding-professional-standards/sector-standards/ valuation/red-book/ (accessed 10 November 2018).

Roychowdhury, S. and Watts, R. L. (2007), "Asymmetric timeliness of earnings, market-to-book and conservatism in financial reporting", *Journal of Accounting and Economics,* Vol. 44 No. 1-2, pp, 2-31. https://doi.org/10.1016/j.jacceco.2006.12.003

Watts, R. L. (2003), "Conservatism in accounting Part I: Explanations and implications", *Accounting Horizons,* Vol. 17 No. 3, pp. 207-221. https://doi.org/10.2308/acch.2003.17.3.207

Watts, R. L. and Zimmerman, J. L. (1978), "Toward a positive theory of the determination of accounting standards", *The Accounting Review,* Vol. 53, pp. 112-134, available at: http://www.jstor.org/stable/245729

Table 1. Breakdown of companies by country and year after adjustments

Country	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	**Total**
UK	16	18	18	15	15	14	14	14	13	13	150
Netherland	2	2	2	2	2	2	1	1	2	2	18
Belgium	5	5	5	5	5	5	5	4	5	5	49
France	10	13	15	14	15	12	11	11	9	9	119
Greece	2	3	3	2	2	3	3	3	1	1	23
Italy	3	3	3	3	3	3	2	3	3	1	27
Spain	2	2	2	2	2	1	2	2	2	1	18
Austria	2	2	2	2	2	2	2	2	2	2	20
Germany	14	14	14	15	13	11	9	8	7	7	112
Denmark	3	3	5	5	5	5	3	4	3	4	40
Finland	3	3	3	3	3	3	3	3	3	3	30
Sweden	10	10	10	10	10	9	9	9	8	8	93
Total	72	78	82	78	77	70	64	64	58	56	**699**

Table 2. Descriptive statistics

Panel A

	N	Mean	Std	Min	Q1	Median	O3	Max
DFV/FV	575	-0.003	0.086	-0.318	-0.036	-0.007	0.017	0.435
VAL	699	2.363	0.664	0	1	2	3	1
NOVALEXT	699	0.104	0.306	0	0	0	1	1
VALEXTO	699	0.428	0.495	0	0	0	1	1
VALEXTL	699	0.468	0.499	0	0	0	1	1
BIG4	699	0.724	0.447	0	0	0	1	1
ORI1	699	0.215	0.411	0	0	0	1	1
ORI2	699	0.552	0.498	0	0	0	1	1
OSHIP	699	0.373	0.484	0	0	0	1	1
LNTA (tEUR)	699	13.427	1.672	8.480	12.296	13.524	14.646	16.720
LEV	699	0.470	0.198	0	0.348	0.500	0.612	0.986
ROA	699	3.78	6.74	-28.10	1.49	4.21	6.96	22.04
SALESGR	699	22.56	98.44	-86.65	-4.33	4.82	19.33	1088.89
CFO/TA	699	0.016	0.045	-0.201	0.007	0.021	0.033	0.162
MTB	699	0.742	0.481	0.070	0.488	0.688	0.913	5.196

Variables are defined in the text.

Table 3. Pearson correlations

	DFV/FV	*NOVALEXT*	*VALEXTO*	*VALEXTL*	*BIG4*	*ORI1*	*ORI2*	*OSHIP*	*LNTA* (tEUR)	*ROA*	*LEV*	*SALESGR*	*CFO/TA*	*MTB*
DFV/FV	1.00													
NOVALEXT	-0.04	1.00												
VALEXTO	0.05	-0.37***	1.00											
VALEXTL	-0.02	-0.36***	-0.73***	1.00										
BIG4	0.05	-0.04	-0.26***	0.28***	1.00									
ORI1	0.09**	-0.07**	-0.14***	0.19***	-0.09***	1.00								
ORI2	-0.01	-0.03	0.18***	-0.16***	-0.13***	-0.60***	1.00							
OSHIP	-0.01	0.16***	0.03	-0.15***	-0.15***	-0.17***	0.31***	1.00						
LNTA (tEUR)	-0.10***	-0.19***	-0.24***	0.38***	0.42***	-0.07**	-0.00	-0.13***	1.00					
ROA	-0.53***	-0.08**	-0.05	0.11***	0.04	0.00	-0.10***	-0.01	0.21***	1.00				
LEV	0.12***	-0.04	0.08**	0.04	-0.10***	-0.12***	-0.05*	-0.07**	0.23***	-0.20***	1.00			
SALESGR	0.03	0.01	0.08**	-0.09**	-0.13***	-0.06**	0.03	0.05*	-0.12***	0.04	0.06*	1.00		
CFO/TA	-0.08**	-0.12***	0.03	0.06*	0.06*	-0.03	0.01	0.01	0.14***	0.21***	-0.17***	-0.02	1.00	
MTB	-0.20***	0.16***	-0.12***	0.01	0.11***	-0.09***	0.12***	0.04	-0.01	0.03	0.03	-0.02	-0.08**	1.00

Notes: *, **, *** denote significance of the Pearson correlations at the 0.10, 0.05, and 0.01 levels, respectively. Variables are defined in the text.

Table 4. Regressions concerning company-specific factors affecting on the choice of appraisal

Panel B	Model 1 ***VAL***		Model 2 ***LEADVAL***	
VALEXTL base outcome	***NOVALEXT***	***VALEXTO***	***NOVALEXT***	***VALEXTO***
BIG4	-0.893	-1.316	-1.317	-1.398
	0.045**	0.000***	0.005***	0.000***
ORI1	-3.940	-1.722	-4.515	-1.720
	0.000***	0.000***	0.000***	0.000***
ORI2	-2.380	-0.031	-2.675	-0.018
	0.000***	0.902	0.000***	0.945
OSHIP	1.738	-0.257	1.922	-0.220
	0.000***	0.202	0.000***	0.295
LNTA (tEUR)	-0.655	-0.406	-0.600	-0.408
	0.000***	0.000***	0.000***	0.000***
ROA	-0.029	-0.007	-0.089	-0.020
	0.312	0.722	0.012**	0.307
LEV	2.422	0.886	2.577	0.864
	0.003***	0.102	0.003***	0.121
SALESGR	-0.002	-0.001	-0.002	-0.001
	0.083*	0.561	0.100*	0.641
CFO/TA	-3.268	-0.199	-1.961	-1.165
	0.249	0.932	0.541	0.651
MTB	-0.011	-0.390	-0.058	-0.344
	0.963	0.077*	0.859	0.143
CONS	8.823	7.349	8.081	7.304
	0.000	0.000	0.000	0.000
N	699	699	639	639
R^2	0.204	0.204	0.217	0.217

Table 5. Regressions concerning the relative fair value change and the choice of appraisal

Panel C

DFV/FV	Model 3	Model 4	Model 5	Model 6
NOVALEXT	-0.016	-0.017		
	0.080*	0.072*		
VALEXTO			0.018	0.017
			0.065*	0.098*
VALEXTL			0.014	0.016
			0.184	0.165
BIG4	0.017	0.017	0.018	0.066
	0.025**	0.018**	0.017**	0.011**
ORI1	0.013	0.013	0.014	0.063
	0.176	0.610	0.172	0.028**
ORI2	0.004	0.006	0.004	-0.012
	0.469	0.781	0.503	0.270
OSHIP	-0.004	-0.002	-0.003	0.020
	0.563	0.872	0.606	0.076*
LNTA (tEUR)	-0.001	-0.001	-0.001	-0.011
	0.519	0.761	0.646	0.080*
ROA	-0.006	-0.006	-0.006	-0.006
	0.000***	0.000***	0.000***	0.000***
MILLSNOEXT		-0.001		
		0.949		
MILLSEXTO				-0.106
				0.018**
MILLSEXTL				0.005
				0.869
CONS	0.020	0.016	-0.001	-0.121
	0.516	0.625	0.978	0.316
N	597	575	597	575
R^2	0.337	0.349	0.338	0.360
Test *VALEXTL=VALEXTO F*-value			0.27	0.02
Test *NOVALEXT = BIG4 F*-value	7.29***	7.45***		
Test *VALEXTO = BIG4 F*-value			0.09	2.98*
Test *VALEXTL=BIG4 F*-value			0.00	3.36*

Notes: Coefficient estimates and standard deviations for both multinomial logistic (Models 1–2) and OLS (Models 3–6) regressions are reported in Tables 4 and 5. The standard errors are robust errors clustered by year and company. The models also have year fixed effects. *, **, *** denote two-tailed statistical significance at the 0.10, 0.05, and 0.01 levels respectively. The continuous variables are winsorized one percent in each tail. Variables are defined in the text.