Ownership structure and Accounting Method Choice:

A Study of European Real Estate Companies

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Abstract

Companies can under IAS 40 choose between the fair value model and the cost model. The fair value model arguably result in more relevant information for investors but the model is also likely to be more costly to use. Based on prior studies suggesting that financial reports are a more important medium for communication with investors in companies with dispersed ownership than in companies with concentrated ownership (e.g., Ball *et al.*, 2005; Givoly *et al.*, 2010), we hypothesize that the use of the fair value model is positively associated with ownership dispersion. We study a sample with 110 publicly traded European real estate companies and our results show that the likelihood that a company is using the cost model is increasing with ownership concentration. In particular, companies in which the largest owner owns more than the half of the shares are significantly more likely to use the cost model.

Keywords: IAS 40; fair value; accounting method choice

1. Introduction

Prior research suggests that financial reports play a more prominent role in communications with investors and other stakeholders if a company has dispersed ownership. The reason for this is that although companies can communicate privately with investors on a needs-basis if there are few owners, it is more efficient to communicate with a large number of investors via financial reports (Ball and Shivakumar, 2005). Our study differs from previous studies in that we focus on two specific accounting choices. In contrast, earlier studies have mainly used accruals-based measurements of earnings quality in tests of the theory (e.g., Ball *et al.*, 2005; Wang, 2006; Kim and Yi, 2006; Givoli, Hayn and Katz, 2010).

In our study we focus on companies from the real estate sector and on two choices that arguably increase the relevance or reliability of information conveyed to investors via financial reports, namely reporting fair values on the balance sheet and using an external valuer to measure fair values. These choices are intended to capture the importance of financial reports as a means of communication with investors. The use of an independent valuer arguably reduces information asymmetries between the company and outside investors. For example, Muller and Riedl, (2002) find that market makers perceive information asymmetry across traders to be lower when firms use independent valuers to assess the fair values of investment properties. Under IAS 40, companies can choose between the fair value model and cost model for investment property. The fair value model here implies that fair values are reported on the balance sheet and that unrealized changes in fair values are reported in the income statement. Although the association is not straightforward, the fair value model is likely to provide investors with more relevant information. Research suggests that fair values are value relevant and reduce information asymmetry between the company and outside investors (e.g., Carroll *et al.*, 2003; Muller, Riedl and Sellhorn, 2011). A drawback with fair values is that they are open to manipulation (Bernston, 2006; Fiechter and Meyer, 2011).

In balance, the arguments above suggests that fair values are more relevant than cost However, the choice of using the fair value model and is likely to be associated with higher costs. One reason for this is that fair values have to be estimated every time interim or annual financial statements are prepared if the fair value model is used. If the cost model is used, fair values are only reported in the notes once a year. Furthermore, as information in the notes to the financial statements typically receives less attention than information reported on the balance sheet. Thus, based on this relevance/reliability and cost trade-off, we predict that companies with dispersed ownership are more likely to use the fair value model.

We use a sample of 110 listed real estate companies operating in the European Union to study these predictions. The real estate industry is a suitable setting for the study of these predictions, partly because IAS 40 allows for alternative accounting models and partly because fair values of investment properties are typically based on unobservable input variables. Fair values in the real estate industry have also been described as subjective (Danbolt and Rees, 2008). Thus, signalling the credibility of fair values to investors is critically important.

We use shareholder information taken from the Orbis database, as our main measure of ownership concentration. The sample is characterized by a relatively high ownership concentration: 30.36 % of the companies have a shareholder that directly or indirectly controls more than 50 % of the shares of the company, 33.93 % of the companies have an owner that controls between 25 % and 50 % of the shares, and for the remaining 35.71 % the largest owner controls less than 25 % of the shares. The high average ownership concentration, together with the distribution over different ownership structures, makes the sample suitable for the study of the effects of ownership dispersion. The mean (median) book value of total assets is €1,405 (408) million.

The study makes the following contributions. Most importantly, we find a strong positive and significant association between ownership dispersion and the choice of the fair value model. Fair values are arguably relevant for investors, so these results are consistent with the notion that financial reports have a more prominent role in the communication with investors when ownership is dispersed. Thus, this finding is also consistent with the view that financial statements have a more prominent role in communication with investors in companies with dispersed ownership. Compared with prior studies, the contribution of this study is that we focus on the association between ownership structure and accounting choices; aspects that have previously not received attention in the literature. In contrast, earlier studies have used accruals based measures in tests of associations between ownership and properties of earnings (e.g., Ball *et al.*, 2005; Wang, 2006; Kim *et al.*, 2006; Givoli *et al.,* 2010).

The study proceeds as follows. Section 2 includes an overview of the rules regulating the accounting of investment property under IAS/IFRS. Section 3 presents prior related literature and the study's hypotheses. Section 4 presents the research design, and section 5 includes the main results of the study. Section 6 presents the conclusions.

2. Accounting for investment property under IAS 40

This study focuses on accounting by listed real estate companies in the EU, and the IAS/IFRS standards as adopted by the European Commission, which have been obligatory in the preparation of consolidated financial statements in the EU Member States since 2005. The IAS/IFRS standards are also used in a large number of other countries, including Australia, Brazil and Canada. Furthermore, some other countries, such as China, use national standards that are substantially converged with IAS/IFRS.

The standard IAS 40 regulates the accounting of investment property and defines it as land, buildings or parts of buildings held by an owner to earn rental and capital appreciation rather than for production, administrative purposes, or sales in the ordinary course of business (IAS 40.5). After the initial recognition, IAS 40.30 allows a company to choose the fair value model or the cost model as its accounting policy. If the fair value model is chosen, it is applied to all the company's investment property (IAS 40.33) and the company shall recognize gains or losses from changes in fair value in terms of profit or loss for the period in which these arise (IAS 40.35), what is more, it shall not be depreciated. If the cost method is applied, investment property is depreciated over its useful life. Furthermore, an impairment loss is recognized if the carrying value is higher than the recoverable amount (see IAS 36). Companies choosing this alternative have to report fair values in the notes to the financial statements (IAS 40.79e).

This study investigates a sample from the year 2009. Up to the beginning of 2013 guidance on fair value calculations could be found in IAS 40.45-46.[1] Fair value is defined in IAS 40.36 as "the price at which the property could be exchanged between knowledgeable, willing parties in an arm's length transaction". This is expected to reflect market conditions at the end of the reporting period. According to IAS 40.45, the best evidence of fair value is given by current prices in an active market for similar property in the same location and condition. However, if the prices in an active market for similar property in the same location and condition are not available, the following apply: (i) prices of property of a different nature or from a different location, (ii) recent prices of similar properties in less active markets, or (iii) discounted cash flow projections based on reliable estimates of future cash flows can be used to assess the fair values (IAS 40.46).

[1] For annual periods beginning on or after 1st January 2013, the fair value guidance in IFRS 13 is followed.

3. Prior literature and hypothesis development

This paper is related to literature about accounting in the real estate sector, as well as literature on the association between ownership structure and earnings quality. Relatively few studies have focused on factors that drive accounting choices and disclosures in the real estate sector.

3.1. Ownership structure and the effect on accounting choice

In this paragraph we analyse how ownership structure affects accounting choice and disclosures from different points of view. Firstly, we examine the differential of recognition vs. disclosure information; secondly, the accounting choices and next, we focus on earnings in different ways (explanatory power and quality).

With respect to the first point, some authors point out that the information has a different usefulness if it is recognised or disclosed. Johnson (1992) studied the issue showing the difference between disclosure and recognition in the FASB Statements. For some, no difference exists ((Dhaliwal, 1986; Davis-Friday *et al.* 1999), but for others these appear in terms of value relevance (Ahmed *et al.* 2006) and contracting costs (Espahbodi *et al.* 2002). Schipper (2007) considers that existing disclosure requirements have been developed without the benefit of guidance that would be provided by either some theory or a standard setter's conceptual framework. Analyses of existing standards suggest that standard setter derive requirements for disclosures from a context-specific consideration of judgments and decisions that users of financial reports might make.

One stream of the literature suggests that recognized information is more reliable than disclosed information (Davis -Friday *et al.* 2004; Libby *et al.* 2006), although some state that this is due to information-processing-related factors (Barth *et al.* 2003; Hirshleifer and Teoh, 2003), among others: lack competence to understand disclosure (Dearmna and Shields, 2005) or for

subjective biases unrelated to user competence (Koonce et al, 2005; Hobson and Kachelmeier, 2005). In general, it has been argued that users understand better the information given in the income statement that the one provided in the notes (Maines and Mc Daniel 2000; Hirst and Hopkins, 1998; Hirst *et al.* 2004).

Some others factors may also contribute to the disclosures information content. Depoers (2000) signals size (Aboody, 2004), foreign activity and proprietary costs; Owusu-Ansah (1998) mentions company size, ownership structure, age and multinational affiliation; and Macikja and Patton (2004) remark the investment fund ownership.

The accounting choice has been studied in two cases: the FIFO-LIFO selection and the pension plans. As for the first one, Niehaus (1989) says that has been influenced by ownership structure, in the sense that LIFO is negatively related to managerial ownership and also, higher outside ownership concentration increase the likelihood of choosing LIFO. Abdel-Khalik (1985) also studied this choice from the perspective of managers and how the change from one method to the other has effects on compensation. As for the second one, Yu (2013) examines whether the institutional ownership and analyst following affect the value relevance of disclosed vs. recognized pension liabilities, the results consistently confirm off-balance sheet pension liabilities are more value relevant for firms with a higher level of institutional ownership.

The relationship between quality of earnings and ownership composition has been investigated from different perspectives . Lamn-Temant *et al.* (1984) establish a link between ownership control, earnings, size and how management insurers provide incentives to exercise income increasing or decreasing accounting choices; Dempsey *et al.* (1993) provide strong support for income increasing behaviour by non owner managers; Carlson *et al.* (1997) suggest that ownership differences, managers' incentive structures and firm profitability are important in explaining smoothing behaviour in firms; Astami and Tower (2005) state that lower ownership concentration is positively related to pursuing income-increasing accounting techniques and in

the same line Ball and Shrakimar (2005) conclude that high quality earnings increase with ownership dispersion. From an international point of view, Leuz *et al.* (2006) demonstrate that cross-listed companies show more earnings management, less timely recognition and lower value relevance that the US firms.

Closely related to the forme issue, other authors have compared the different behaviour between public and private entities, Hope *et al.* (2013) attributes the differences according to the type of firm: in the public ones managers have incentives to provide information demanded (agency theory) meanwhile for the second ones the demand is less obvious as major capital providers often have access to inside information and typically take a more active role in management (Chen *et al.* 2011). This implies that financial reporting in private firms are more likely to be influenced by factors as tax reporting, or dividend policy (Fan and Won, 2002; Ball and Shrakimar, 2005; Burgstahler *et al.* 2006; Ding *et al.* 2007; Ramalingegowda *et al.* 2013), in contrast with public firms that should attend the demands of external parities which stimulate to manipulate earnings (Graham *et al.* 2005). Other authors, like Givoly *et al.* (2010), reinforce the opportunistic behaviour hypothesis as it dominates the actions of managers in publicly traded companies and conclude that investors and other stakeholders of public firms demand higher quality financial information. Likewise, Burghstaler et.al. (2006) conclude that privately held firms have relatively concentrated ownership structures and hence, can efficiently communicate among shareholders via private channels, but in the case of private entities they have fewer incentives to report informative earnings, which implies that managers put different roles for reported information, Ball and Shivakumar (2005) maintain that these other uses render earnings less informative.

In the same line, Leuz (2006) also states that firms with concentrated ownership and high differences between cash flow rights and control rights have loss incentives for financial reporting and Kinnuen *et al.* (2000) are more specific, as they conclude that foreign investors

may demand more information than domestic investors due to the lack of institutional knowledge.

3.1 Prior studies of the real estate sector

Muller *et al.,* (2011) investigated whether the adoption of IAS 40 in Europe in 2005 and its fair value disclosure requirements reduced information asymmetry across market participants. The evidence suggests that the mandatory reporting of fair values reduces, but not necessarily eliminates, information asymmetry differences across firms. Our study differs from the ones above in that we take one step forward and focus on factors associated with the practice to disclose information that reduce information asymmetry across market participants.

Our study is also related to Quagli and Avallone, (2010), who studied the choice between cost and fair value on a sample of 76 European real estate companies in the years following the adoption of IFRS. They based their hypotheses on contractual efficiency related arguments, and the notion that fair values can reduce information asymmetry and that the choice could be driven by managerial opportunism. They found that the size of the company and market-to-book calculated on accounting numbers before the adoption of IAS/IFRS were negatively associated with the use of fair values. Our study differs from this one in the following important ways. First, we focus on other factors that could drive the choice between the methods. Second, we use a larger sample from a more recent time period. An advantage with using a more recent sample is that it mitigates the impact of national pre-IFRS practices on the reporting to some extent.

Kvaal and Nobes, (2012) found that although pre-IFRS patterns continued for several years after the adoption, some post-transition changes had also taken place. However, in supplementary analyses we exclude companies from the UK, where a fair value model resembling that under IAS 40 was used prior to IAS/IFRS adoption.

3.2 Hypothesis development

We base our hypothesis on the notion in Ball *et al.*, (2005) that the demand for high quality earnings increases with ownership dispersion. Ball *et al* use a setting with private and public ownership as the starting point for the analysis, and suggest that private companies are more likely than public companies to communicate privately with shareholders and other stakeholders. Private communication is comparatively less efficient for publicly held companies, because they often have a large number of anonymous shareholders. Furthermore, shareholders take a more active role in management in privately traded companies, which reduces their reliance on financial statements for monitoring managers. These arguments are transferable to a setting with high or low ownership concentration: in a setting with high concentration managers can communicate directly with key owners and furthermore, owners with a large stake in the company have incentives to monitor managers closely (cf. Shleifer and Vishny, 1986).

Our hypothesis focuses on the association between ownership structure and the choice between the cost model and the fair value model. Prior literature suggests that fair values are more relevant for investors than historical cost (e.g., So and Smith, 2009). Some studies show that recognized amounts are more relevant for investors than information disclosed in notes to the financial statements (e.g., Davis-Friday, Folami, Liu and Mittelstaedt, 1999; Hirst, Hopkins and Wahlen, 2004). This would suggest that fair values recognized on the balance sheet are more relevant for investors than those disclosed in notes. However, the fact that markets for investment properties are thin, and therefore influenced by judgment and earnings, management attempts may reduce the relevance of fair values. Danbolt *et al.*, (2008) compare the value relevance of fair values in the real estate sector with fair values in the investment fund industry. They conclude that fair values in the real estate industry are considerably less

value relevant, and point to this as consistent with earnings management. Givoly *et al.,* (2010) point out that a competing hypothesis to the demand hypothesis proposed by Ball *et al.*, (2005) is that managers of companies with dispersed ownership opportunistically manage earnings in order to obtain private benefits. However, auditing as well as managers' incentives to establish track records for credible reporting is likely to reduce incentives to manage earnings (e.g., Palepu, Healy and Peek, 2010 pp. 520-521).

A factor that reduces the incentive to use the fair value model is that it is likely to be more costly to apply than the cost model. One reason for this is that fair values have to be estimated more frequently than under the cost model, because the fair values of investment properties are disclosed in interim reports in addition to the annual reports. Furthermore, as information in the notes to the financial statements typically receives less attention than information reported on the balance sheet (e.g., Davis-Friday *et al.,* 1999; Hirst *et al.,* 2004), one could surmise that on average companies spend more time and resources on the fair value measurement if the fair value model is used. Thus, if companies trade-off these benefits and costs with the use of the fair value model, and if financial statements have a more prominent role in the communication with investors and other stakeholders in a company with dispersed ownership, we get the following prediction:

H_1: Companies with concentrated ownership are more likely to choose the cost value model.

4. Data and research design

4.1 Sample

Our study is based on a sample of 110 publicly traded real estate companies within the European Union. The companies in the sample operate mainly in the EU region and are all listed at stock exchanges in EU countries. The data used in this study was obtained from the

Orbis database and from the consolidated financial statements of the companies. The consolidated financial reports were retrieved from the companies' websites and the following variables used in this study were collected: information about whether the company used the cost or the fair value model, the information about the biggest owners, and information about the method used to measure fair values.

The data is from 2009. Companies in the European Union started to follow IFRS in 2005 and by 2009 had been able to exploit the flexibility of IFRS and adopt accounting policies that were in the best interest of the company (Kvaal *et al.*, 2012). Also, in 2009 the financial crisis in European countries had not had a drastic effect on the operations in the sector.[2] Furthermore, the choice of the year studied is not likely to have any significant effects on the results because companies are expected to apply the same accounting policy from one period to the next unless a change in accounting policy is required by an IFRS or the accounting policy change results in financial statements providing reliably and more relevant information about the effects of transactions on the entity's financial statements (IAS 8.14-15).

The sample was composed as follows. We started with all publicly traded companies in the Orbis database reporting real estate activities (NACE code 68) as their main activities in the European Union. This gave us a primary sample of 223 companies. For some of the companies investment property only constituted a small proportion of their assets. For inclusion in the sample we required that investment property should amount to more than half of the total property plant and equipment. Furthermore, as we collected complementary data from the financial statements of the companies, only companies whose financial statements were available on their websites were considered for inclusion. The above criteria led to an omission of 111 companies, thereby leaving 110 companies for further analysis (two companies have

[2] In the spring of 2012, 11 of the companies in the sample had been de-listed.

not announced the biggest owner information). The fair value method is used by 88 companies and the cost method by 22 companies. The mean (median) assets of the companies are €1,429 (445) million, and the mean (median) revenues are € 136 (41) million. The origin of the companies is displayed in Table 1.

[Insert Table 1 here]

Companies have to disclose the methods and significant assumptions applied in determining fair values of investment properties (IAS 40.75d).[3] We classified the companies into four categories, based on: (i) discounted cash flow predictions or other income based methods, (ii) prices for similar properties or (iii) a combination of the above methods in order to measure fair values. The fourth category includes companies that did not provide clear information about which method had been used. We found that 4 (3.64%) companies exclusively used a market comparable approach, 34 (30.91%) used discounted cash flows or another income based approach, 35 (31.82%) used a combination of the methods and 37 (33.64%) did not provide clear information about which method was used. Thus, most of the companies in the sample used an income approach for the fair value measurement.

4.2 Research design

We used the following models to test our hypothesis:

$$FV = \beta_0 + \beta_1 LARGEST + \beta_2 OWNER_{Private} + \beta_3 OWNER_{Bank} + \beta_4 ORIGIN_{German} + \beta_5 ORIGIN_{English} + \beta_6 ORIGIN_{French} + \beta_7 LNREVENUES + \beta_8 \Delta LNREVENUES + \beta_9 BIG4 + \beta_{10} SOLVENCY + \varepsilon \quad (1)$$

(2)

[3] This disclosure requirement was the standard during the time period studied, but has since been moved to IFRS 13.

$$FV = \beta_0 + \beta_1 LARGEST_{25\text{-}50} + \beta_2 LARGEST_{>50} + \beta_3 OWNER_{Private} + \beta_4 OWNER_{Bank} + \beta_5 ORIGIN_{German} + \beta_6 ORIGIN_{English} + \beta_7 ORIGIN_{French} + \beta_8 LNREVENUES + \beta_9 \Delta LNREVENUES + \beta_{10} BIG4 + \beta_{11} SOLVENCY + \varepsilon \quad (3)$$

$$FV = \beta_0 + \beta_1 3LARGEST + \beta_3 OWNER_{Private} + \beta_4 OWNER_{Bank} + \beta_5 ORIGIN_{German} + \beta_6 ORIGIN_{English} + \beta_7 ORIGIN_{French} + \beta_8 LNREVENUES + \beta_9 \Delta LNREVENUES + \beta_{10} BIG4 + \beta_{11} SOLVENCY + \varepsilon \quad (4)$$

We use binary logistic regressions to estimate Models 1 to 4. The ownership structure is measured with the indicator variables *LARGEST* in Model 1 and *3LARGEST* in Model 3. *LARGEST* is the fraction of shares owned by the shareholder with the largest ownership in the company. *3LARGEST* is the sum of the ownership of the three largest shareholders. In Models 2 and 4 the ownership structure is measured with indicator variables. In Model 2, the ownership is measures with $LARGEST_{25\text{-}50}$ and $LARGEST_{>50}$. The former variable takes the value one if the fraction owned by the owner with the largest stake in the company is between 25 % and 50 %, and the latter variable takes the value one if the fraction owned is over 50 %. Companies in which the largest shareholder owns less than 25 % are in the base-category. In Model 4, the ownership is based on the sum of the three largest owners, and consequently, $3LARGEST_{>50}$ takes the value one if the three largest shareholders own more than 50 % of the shares.[4]

The motivations of the control variables are as follows. Based on the data in Orbis, the companies were classified into the following three categories, based on the identity of the

[4] All companies in which the three largest shareholders owned less than 25 % of the shares used the cost model. Thus, it is not possible to estimate a logistic regression with two indicator variables as in Model 2

largest owner: (i) companies owned by banks or other financial companies (e.g., a fund, an insurance company or a treasure holding company), (ii) companies owned by a person or family, and (iii) another category including companies owned by an industrial company, a foundation and cases where no information about the identity of the largest owner was available. In order to control for the possible effects of the type of owner on the results, we include $OWNER_{private}$ and $OWNER_{bank}$ in the regressions. Companies in the category (iii) are in the comparison category.

According to the LaPorta, Lopez-de-Silanes, Shleifer and Vishny, (1998) measure, the countries included in the sample have different legal and enforcement qualities. Burgstahler *et al.,* (2006) find that earnings quality is positively associated with the legal and enforcement quality. We include indicator variables for German, English and French origin as controls ($ORIGIN_{German}$, $ORIGIN_{English}$, $ORIGIN_{French}$). Companies from Scandinavian origin countries, according to the LaPorta *et al.,* (1998) classification, are in the reference group (Denmark, Finland and Sweden). Kvaal *et al.*, (2012) suggest that national pre-IFRS patterns also have an impact on accounting after the adoption of IFRS. Studies also suggest that cultural factors influence accounting estimates (e.g., Shulz and Lopez, 2001). In addition, the legal origin indicator variables provide at least a partial control for these factors.

Furthermore, one would expect larger companies to provide higher quality accounting and disclosures due to their public exposure. We include the logarithm of sales as a control for this (*LNREVENUES*). Growing companies are more likely to need external financing, and some previous studies show that the cost of capital is negatively associated with disclosure quality (Botosan, 1997). We include growth in sales as a control in the regressions ($\Delta LNREVENUES$). Furhtermore, Quagli *et al.,* (2010) found that leverage is negatively associated with the choice of the fair value model. We use *SOLVENCY* as the measure.

[Insert Table 2 here]

Prior studies suggest that large international audit firms conduct higher quality audits than smaller audit firms (see Francis, 2004 for a review). A possible consequence of this is that the disclosure quality is higher. We include a Big 4 indicator variable as a control (*BIG 4*). The exact calculations of the variables are presented in Table 2.

5. Empirical results

5.1 Choice between fair value and cost model

In Table 3 we present descriptive statistics on the variables. It can be seen that the mean value of *LARGEST* is 37.49 % among fair value appliers and 55.77 % among cost model appliers. The corresponding figures are 53.21 % and 76.46 % when ownership concentration is measured with *3LARGEST*. Thus, the results show that ownership is more concentrated in companies using the cost model (p-values < 0.01). Furthermore, the average value of $LARGEST_{>50}$ is 0.295 for fair value model users and 0.545 for cost model users showing that 29.5 % of the companies in the sample using the fair value model has an owner that controls more than 50 % of the shares. The corresponding percentage for companies applying the cost model is 54.5 %. The proportion of companies using the fair value model with an owner that controls more than 25 % and less than 50 % is 33.0 %. The corresponding percentage is 40.9 % for the companies using the cost model. A final figure in Table 3 showing that ownership concentration is associated with the accounting method choice is that $3LARGEST_{>50}$ is significantly higher for cost model users than for fair value model users (95.5 % compared with 60.2 %).

[Insert Table 3 here]

In Table 4 we present logistic regression results of the association between ownership structure variables, control variables and the choice between the fair value and cost models. The significance levels are based on robust standard errors clustered by country.

The results reported in the first and third regression in Table 4 show that *LARGEST* and *3LARGEST* have negative and significant coefficients. Thus, also the logit results show that companies with higher ownership concentration are more likely to choose the cost model. Furthermore, the negative coefficients of $LARGEST_{>50}$ in Model 2 and $3LARGEST_{>50}$ in Model 4 show, that companies in which the largest owner(s) controls more than 50% of the shares are significantly less likely to use the fair value model. The coefficient of $LARGEST_{25\text{-}50}$ in Model 2 is insignificant, showing that companies in which the largest owner controls between 25 % and 50 % of the shares are not less likely to use the fair value model than companies in which the largest owner controls less than 25 % of the shares. In sum, also the logistic regression results strongly indicate that companies with dispersed ownership are less likely to use the cost model, which supports our hypothesis.

Indeed, in the motivation of hypothesis we point out that companies are more likely to choose the cost model when ownership is concentrated, because financial reports then have a smaller role in the communication with investors. In other words, the demand for higher quality financial reports in companies with concentrated ownership does not drive the results. However, fair values are arguably easier to manipulate than historical cost. Thus, an alternative explanation to the results is that companies with dispersed ownership are largely manager-controlled. Managers might prefer fair value over cost in order to improve their possibilities to behave opportunistically and manage earnings, for example, in order to maximize bonuses (cf. Givoly *et al.,* 2010). We are not able to separate between these explanations of the results.

[Insert Table 4 here]

Control variables: A further observation that can be made from Table 4 is that the identity of the largest owner is significantly associated with the choice. $OWNERTYPE_{bank}$ has a positive coefficient significant at the 0.01 level showing that companies largely owned by a bank or other financial company are more likely to apply the fair value model than companies owned by owners in the "other" category. Furthermore, it can be seen that the coefficient of $OWNERTYPE_{bank}$ is higher than the coefficient of $OWNERTYPE_{private}$, and a chi-squre test shows that the difference is significant at the 0.10 level in Models 1 and 3. A possible reason for this is that banks want to get updated information about the fair value of collateral used as security for loans. If the fair value model is used, the fair values of properties are readily available in the balance sheet. If the cost model is used, the fair values have to be found from the notes what is sometimes tricky.

Moreover, there are significant countrywide variations in the use of the fair value model. Companies from Scandinavian origin countries are in the reference category in the analyses. Thus, the results show that companies from French origin countries are more likely to use the cost model than companies from Scandinavian origin countries. We use chi-square tests to test the differences between the origin indicators. These results show that companies from English origin countries are significantly more likely to use the fair value model than companies from German or French origin countries but the difference in the coefficient estimates of $ORIGIN_{German}$ and $ORIGIN_{French}$ are generally insignificant. A possible reason why French origin companies are using the fair value model is that there is a strong pre-IFRS cost tradition in these countries.

Furthermore, the result that *LNREVENUES* has a positive coefficient significant at the 0.05-0.10 level, which shows that larger companies are more likely to use the fair value model. A possible reason for the more extensive use of the fair value model is that they believe that the typically better performance ratios of the fair value model will have a positive impact on

access to and the price of external funds. Finally, it can be seen that companies audited by *BIG4* audit firms are more likely to use the cost model.

5.2 Supplementary analysis

We concluded above that most companies from the UK use the fair value model. In the UK SSAP 19, Accounting for Investment Properties, was used prior to the adoption of IAS. Under this standard investment properties were re-valued on an annual basis (see e.g., Danbolt *et al.,* 2008), and reported on the balance sheet. Thus, one possible contributory factor to the use of the fair value model in the UK is that pre-IFRS practices have had an impact on the choice of model under IAS 40. Thus, the frequent use of the fair value model in the UK is consistent with the view that accounting practices in the country before IFRS had an impact on post-IFRS practices (Kvaal *et al.*, 2012). We attempted to exclude the English origin companies run logit regression comparable to the ones in Table 4. These results were qualitatively similar to the ones in Table 4: *LARGEST* has a negative coefficient significant at the 0.05 level in Model 1. In Model 2, $LARGEST_{>50}$ has a negative coefficient significant at the 0.10 level while $LARGEST_{25\text{-}50}$ is insignificant as in Table 4. Furthermore, in Model 3, 3*LARGEST* has negative coefficient significant at the 0.01 level and in Model 4, $3LARGEST_{>50}$ has a negative coefficient significant at the 0.05 level. In conclusion, the results show that the negative association between ownership concentration and the use of the fair value model is not driven by companies from English origin countries.

6. Conclusions

Prior studies suggest that financial reports are a more important medium for communication with investors in companies with dispersed ownership than for companies with concentrated ownership (e.g., Ball *et al.*, 2005; Givoly *et al.,* 2010). IAS 40 permits companies

to choose between the cost model and the fair value model and we study how the choice correlates with the ownership structure. Based on the notion that fair value on the one hand is more relevant and reduce information asymmetry problems between the company and outside investors, but on the other hand a more costly method to apply, we predict that companies with dispersed ownership are more likely to use the fair value model. The prediction is tested on a sample with 110 listed European companies from the real estate sector, and we find strong support for the prediction that ownership concentration is associated with the choice between the methods. This is to our knowledge the first study of how ownership concentration is associated with the accounting method choice under IAS 40.

A further noteworthy finding in the study is that there is considerable cross-country variation in the use of the fair value and cost models. We used the legal origin classification used by LaPorta *et al.,* (1998) and others as the basis for our classification of countries and found that companies from Scandinavian origin and English origin countries were much more likely to use the fair value method than companies from German or French origin countries. One possible reason for this is that accounting practices in the countries before IAS adoption had some impact on post-adoption practices (e.g., Shulz *et al.*, 2001; Kvaal *et al.*, 2012).

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Table 1. Breakdown of companies by accounting method and country

Country	Fair value model	Cost model	Total
UK	22	1	23
Ireland	1	0	1
Belgium	5	1	6
France	16	10	26
Greece	3	0	3
Italy	2	2	4
Netherlands	1	0	1
Spain	0	4	4
Austria	3	0	3
Germany	12	3	15
Denmark	6	0	6
Finland	3	1	4
Sweden	14	0	14
Total	**88**	**22**	**110**

Table 2. Variable definitions

FV	An indicator variable taking the value one if the company uses the fair value model and zero if it uses the cost model under IAS 40.
LARGEST	A variable measuring the ownership portion of the biggest owner.
$LARGEST_{>50}$	An indicator variable taking the value one if the largest shareholder directly or indirectly controls over 50% of the shares.
$LARGEST_{25\text{-}50}$	An indicator variable taking the value one if the largest shareholder directly or indirectly controls between 25-50% of the shares.
$LARGEST_{<25}$	An indicator variable taking the value one if the largest shareholder directly or indirectly controls less than 25% of the shares.
3LARGEST	A variable measuring the ownership portion of three largest shareholders.
$3LARGEST_{>50}$	An indicator variable taking the value one if three largest shareholders directly or indirectly control over 50% of the shares.
$3LARGEST_{<50}$	An indicator variable taking the value one if three largest shareholders directly or indirectly control less than 50% of the shares.
$OWNERTYPE_{bank}$	An owner is classified as a financial company (for example a fund, an insurance company, a treasure holding company) or a bank.
$OWNERTYPE_{private}$	An owner is an individual person or a family.
$OWNERTYPE_{other}$	An owner is classified as an industrial company, a foundation or if it has been pointed out in Orbis that it is a public company or alternatively, the ownership structure was not available from Orbis (one company).
$ORIGIN_{Scandinavia}$	An indicator variable taking the value one if the company is from a Scandinavian origin country (Denmark, Finland or Sweden).
$ORIGIN_{German}$	An indicator variable taking the value one if the company is from a German origin country (Germany or Austria).
$ORIGIN_{English}$	An indicator variable taking the value one if the company is from an English origin country (UK or Ireland).
$ORIGIN_{French}$	An indicator variable taking the value one if the company is from a French origin country (Belgium, France, the Netherlands, Greece, Italy, Spain).
LNREVENUES	The natural logarithm of the revenues.
$\Delta LNREVENUES$	The natural logarithm of the revenues year *t* less the natural logarithm of revenues in year *t*-1.
SOLVENCY	The solvency of the company calculated as shareholders equity to total assets.
BIG4	An indicator variable taking the value one if the company is audited by PwC, KPMG, Ernst&Young or Deloitte.

Table 3. Descriptive statistics

	Fair value model		**Cost model**		
	Mean	Std.Dev.	Mean	Std.Dev.	*P*-value
LARGEST	0.375	0.273	0.558	0.216	0.002
$LARGEST_{<25}$	0.375	0.487	0.045	0.212	
$LARGEST_{25\text{-}50}$	0.330	0.472	0.409	0.503	
$LARGEST_{>50}$	0.295	0.459	0.545	0.510	0.008
3LARGEST	0.532	0.289	0.765	0.180	0.005
$3LARGEST_{<50}$	0.398	0.492	0.045	0.212	
$3LARGEST_{>50}$	0.602	0.492	0.955	0.213	0.002
$ORIGIN_{Scandinavia}$	0.270	0.446	0.043	0.209	
$ORIGIN_{German}$	0.169	0.376	0.174	0.388	
$ORIGIN_{English}$	0.258	0.440	0.043	0.209	
$ORIGIN_{French}$	0.303	0.462	0.739	0.449	0.001
$OWNER_{Financial}$	0.539	0.501	0.304	0.470	
$OWNER_{Private}$	0.169	0.376	0.130	0.344	
$OWNER_{Other}$	0.292	0.457	0.565	0.507	0.083
LNREVENUES	10.414	1.934	10.261	2.552	0.757
$\Delta LNREVENUES$	0.201	0.589	-0.200	0.730	0.008
BIG4	0.573	0.497	0.696	0.470	0.381
SOLVENCY	36.903	20.377	36.004	30,389	0.868
N	88		22		

Note: *P*-values are for *t*-tests and chi-square tests for the continuous and dichotomous variables respectively. The variables are explained in Table 2.

Table 4. Logistic regression results

	Model 1			**Model 2**			**Model 3**			**Model 4**		
	Coef.	Std.Err.	*P*-value	Coef.	Std.Err.	*P*-value	Coef.	Std.Err.	*P*-value	Coef.	Std.Err.	*P*-value
LARGEST	-0.020	0.086	0.019**									
LARGEST$_{25\text{-}50}$				-1.283	1.102	*0.876*						
LARGEST$_{>50}$				-1.860	0.753	*0.014***						
3LARGEST							-0.048	0.012	0.000***			
3LARGEST$_{>50}$										-2.008	0.927	0.030**
OWNERTYPE$_{private}$	-0.691	1.214	0.569	-0.812	1.263	0.520	0.968		0.465	-0.154	0.965	0.873
OWNERTYPE$_{bank}$	1.272	0.450	0.005***	1.294	0.401	0.001***	2.131		0.003***	1.177	0.343	0.001***
ORIGIN$_{German}$	-1.478	1.127	0.190	-1.630	1.265	0.198				-1.873	1.013	0.065*
ORIGIN$_{English}$	0.170	1.197	0.887	0.278	1.314	0.832				-0.082	0.989	0.934
ORIGIN$_{French}$	-2.801	1.047	0.007***	-2.763	1.098	0.012**				-2.740	0.911	0.003***
LNREVENUES	0.227	0.117	0.052*	0.245	0.114	0.032**	0.213	0.118	0.072*	0.317	0.166	0.055*
ΔLNREVENUES	1.850	1.616	0.252	1.614	1.543	0.296	4.039	1.811	0.026**	1.710	1.632	0.295
BIG4	-1.410	0.568	0.013**	-1.503	0.529	0.005***	-0.753	0.488	0.123	-1.473	0.522	0.005***
SOLVENCY	-0.003	0.135	0.801	-0.003	0.130	0.831	0.008	0.019	0.660	-0.001	0.011	0.914
CONS	2.347	1.378	0.089	2.603	1.644	0.113	2.146	1.714	0.211	2.121	1.679	0.206
N	110			110			92			110		
Model Chi-square (p-value)		370.44	0.000***	0.000	719.35	0.000***	129.52		0.000***	221.56		0.000***
Pseudo R^2	0.322			0.329			0.380			0.332		

Notes: *, **, *** denote two-tailed statistical significance at the 0.10, 0.05 and 0.01 levels, respectively. Robust standard errors are used. The variables are defined in Table 2.