The Value Relevance of Operating Lease Liabilities: Economic Effects of IFRS 16

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The new IASB and FASB models for leases aim to improve the quality of financial reporting. To this end, both standard setters impose the recognition of assets and liabilities for operating leases. Meanwhile, preparers have been strongly lobbying against these changes, as in their view the new treatment will lead to negative economic consequences. We undertake a value-relevance study to examine whether as-if capitalised operating leases are priced by market users in a relatively unexplored setting. We consider Spanish listed firms, and employ hand-collected data on operating leases disclosed in the notes to the financial statements to constructively capitalise the assets and liabilities. Our analysis suggests that investors in code-law countries with less developed markets and low enforcement quality do not behave any differently to those in common-law countries that have more developed markets and stricter enforcement policies. Investors equally value recognised debts and operating lease liabilities resulting from information in the notes in retail sectors. In our view, these results could provide some comfort to managers in the most affected industries, as they suggest the change will not have a major impact on the stock exchange.

Leasing is now a very common practice in business financing. According to the White Clark Group (2017), the annual volume of leasing totalled more than US$1 trillion in 2015. Accounting regimes establish different procedures for finance leases (also called capital leases) and operating leases. Finance leases result in the recognition of assets and liabilities in the balance sheet of the lessee, so that the asset is subsequently amortised, while operating leases are treated as expenses in the income statement, and details about liabilities only appear in the notes to the financial statements. This classification depends on whether or not there is a substantial transfer of all the risks and rewards of ownership of the leased asset to the lessee. If such a transfer takes place, then the lease is classified as a finance lease; otherwise, the lease is considered to be operating. To the extent that operating leases do not penalise debt ratios and generally imply better profitability ratios, firm managers prefer to treat leases as operating. Listed companies around the world have around €3 trillion worth of leases, especially in sectors such as the airline industry, retail and shipping; under current accounting requirements, over 85% of these leases are labelled as operating leases and are not recorded on the balance sheet (Hoogervorst 2016). However, the new standards issued in 2016 by the International Accounting Standards Board (IASB) and the US Financial Accounting Standards Board (FASB) ban this practice, so that all leases must be recognised in the balance sheet. The new standards will come into force on 1 January 2019.

According to Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of International Accounting Standards (IAS), the consolidated financial statements of European publicly traded companies must be prepared in conformity with adopted International Financial Reporting Standards (IFRS); hence, in this work we focus on IFRS 16 Leases. After following the complex endorsement process, this new standard was recently adopted by the European Commission, and so will be compulsory for EU companies from 2019.

The current accounting rules have been widely criticised mainly due to the rather fine line between the two types of leases; while economically both transactions are similar, they are accounted for in very different ways. Thus, soon after these standards were issued, studies highlighted that the different accounting treatments made firms structure their leases to avoid them appearing on the balance sheet (Imhoff and Thomas 1988), and the trend has been growing over time (Duke et al. 2009; Beatty et al. 2010; Bryan et al. 2010; Dechow et al. 2011). Not surprisingly, while the new solution has been
well-received by financial analysts and investors, firms have remained critical.

The accounting change is the result of a 10-year process, in which a discussion paper (DP) and two exposure drafts (ED) were issued. Whilst it is indeed normal practice to issue only one ED under so-called due process, in this case more than 1700 comment letters were received, a good deal more than usual. With the aim of contributing to the post-implementation review of the new standard and determining the likely impact of the accounting change, our study analyses whether investors read the information in the notes and treat the as-if liabilities due to operating leases as real liabilities when establishing market prices, as well as examining how investors value them. Thus, this is an ex ante analysis that can be seen as policy-relevant research. We apply the constructive capitalisation method to hand-collected data on operating leases, with which we measure the as-if liabilities and adjust the consolidated financial statements of Spanish listed firms during the four-year period 2010–2013.

To our knowledge, this is the first paper that looks at the market valuation of operating leases in a continental code-law country. Both the UK and the US are common-law jurisdictions with highly developed stock markets where prior research has been performed. However, Spain is a code-law country with a less developed market, which could affect the perception of accounting information when disclosed in the notes. As La Porta et al. (1998) and later studies evidence, legal origin differences affect the institutional features of financial markets—including stock market development, the role of the banking system, the accounting model, the enforcement degree and investor rights; common law and code law constitute the key legal origin groups.

Before IFRS were applied, a number of studies proved the influence of legal systems in accounting numbers (e.g., Ball et al. 2003; Leuz et al. 2003). Referring to the EU, Arce and Mora (2002) suggest that the use of a common set of standards could mitigate the differences caused by the accounting rules but not those caused by institutional and cultural factors. Along these lines, later studies confirm that although comparability increased after the adoption of IFRS, differences remain across jurisdictions (e.g., Clarkson et al. 2011; Barth et al. 2012; Landsman et al. 2012; Kang 2013). While some authors attribute the increased comparability to changes in enforcement (Christensen et al. 2013), others encourage political institutions to harmonise incentives and institutional factors (Jeanjean and Stolowy 2008). More recent papers evidence that the different governance models and enforcement degrees determine how legal classification may influence accounting practices, such as voluntary disclosure (Li and Yang 2016) and earnings management (Francis et al. 2016). In our view, the strength of legal enforcement plays a central role, and to a large extent, the differences that still remain are clearly embedded in legal classification. Consequently, we consider it relevant to analyse the effect of operating lease contracts in a code-law jurisdiction, where the degree of enforcement differs considerably from those studied earlier, which will be explained next.

Although Spain is economically integrated into a very large and advanced pan-national economy, the EU, where markets and governments have converged to a substantial degree, the country has some characteristics that make it different from those studied before. According to the World Economic Forum (2017), Spain ranked 71st out of 138 in the eighth pillar: Financial Market Development (followed by six EU countries: Romania, Portugal, Slovenia, Cyprus, Italy and Greece). Nevertheless, in January 2015, the Spanish capital market was the fourth largest capital market in market capitalisation in Europe. The Regulatory Quality Index (RQI) (Kaufmann et al. 2009) and the Accounting Enforcement Index (AEI) (Brown et al. 2014) reveal that the institutional setting differs from those included in prior studies (RQI is 1.27 in Spain, 1.79 in the UK and 1.58 in the US; AEI is 42 in Spain, 54 in the UK and 56 in the US, the maximum score).

Related to the topic under study, we should refer to bankruptcy law. In Spain, as in other continental code-law systems, lessors maintain the ability to repossess the asset regardless of the type of leasing. Leases have an important benefit over loans, namely that repossessing the leased asset is easier than foreclosing on the collateral of a secured loan. Furthermore, in Spain, as in some countries, there has been a tendency to approximate local regulations to IFRS, which implies that the new standard could have a cascade effect and bring about changes in domestic regulations affecting non-listed firms. As mentioned in the 2016 annual report published by Leaseurope, Spain is the sixth country in the EU in lease market size with a total investment in leases of €30 billion, which justifies our interest in examining such a different context.

Our results suggest that market participants use the notes, and do not attach a different value to recognised debts and off-balance sheet (OBS) liabilities derived from operating leases. This would suggest that the Spanish market views operating leases from the property rights perspective, as opposed to the current ownership perspective. In addition, we identify an industry effect, as our results are driven by the retail sector. In other words, investors price operating leases, but only in retailing firms. We understand these results might help managers in the most affected industries to be more confident about the implication of the accounting change, as it seems investors are currently aware of the information disclosed in the notes to financial statements.
Institutional Regulatory Background

The current standards in force on lease accounting, IAS 17, issued in 1997 by the International Accounting Standards Committee (IASC), and adopted by the IASB in 2003 (IASB 2003), and Statement of Financial Accounting Standard (SFAS) 13 (FASB 1976), both require firms to distinguish between operating and finance leases. Despite the similarities, there are some differences between the two standards. The main difference is that IAS 17 lacks the bright-line tests associated with SFAS 13,\(^1\) which facilitate structuring leasing arrangements with the intent of narrowly avoiding capitalisation (Spencer and Webb 2015).\(^2\) Before the Boards added to their agendas a joint project on lease accounting in 2006, the topic was already under discussion. In fact, 10 years earlier, the G4\(^1\) had published a DP along the same lines as the new models (G4+1 1996). In 2005, the US Securities and Exchange Commission (SEC) questioned lease accounting, taking into account the figures regarding the use of this type of agreement compared with those of capital leases. Based on their own analysis of a sample of annual reports, approximately 63% of all listed companies reported operating leases, while only 22% reported finance leases (SEC 2005). A year later, the two Boards, which were engaged in a convergence project to achieve common standards, added a joint project on lease accounting to their agendas. The general view was that the treatment of the leases underestimated both assets and liabilities, and the classification of leases was complex and subjective. Consequently, many firms structured \textit{ad hoc} contracts to avoid capitalising finance leases. These comments are still valid 12 years later.

The IASB due process involves a series of steps,\(^3\) which necessarily include the publication of at least one draft standard. In this case, a DP and two EDs were published. According to due process, these documents must be submitted to public scrutiny in order to receive comments (which in turn are later made public). The normative process also requires an analysis of the expected effects of the standard. In 2016, the lease project analysis was published. The results highlight the US$3 trillion of payment commitments, which, according to current regulations, are disclosed in the reports of listed companies that use either IFRS or US GAAP. This large amount of OBS debt is concentrated in the air, retail, travel and leisure sectors (IASB 2016b). The extent to which their incorporation in the financial statements may have economic consequences and affect market prices, debt and remuneration contracts, among others, is the underlying question that drives this research.

The Boards published a joint DP in March 2009, which would remove the line between operating and finance leases. This DP proposed a new accounting (‘right-of-use’) model to be applied to all leases. Hence, it requires recognising an asset (that represents the right to use the leased asset for the lease term) and a liability to make lease payments. This DP received 302 comment letters,\(^4\) of which 47% and 18% came from the preparers and industry organisations, respectively; the majority of those who did not support the principles in the DP belonged to these groups.\(^5\) The first ED issued in August 2010 followed the DP approach but made some changes; it excluded the purchase option (unlike the DP) and introduced the option of using a simplified approach for short-term leases without updating payments. During the comment period, 786 letters were received; about two-thirds came from preparers and industry organisations.\(^6\) After analysing the comment letters on ED 2010 and holding several meetings and discussions, in May 2013 the Boards issued a second draft, which greatly differed from the previous one. Among other relevant changes, the new ED 2013 introduced a dual model. Thus, a lease had to be classified as either Type A or Type B, depending on whether a lessee is expected to consume more than an insignificant portion of the economic benefits embedded in the underlying asset (Type A) or not (Type B). It presumed that leases of property are Type B and leases of assets other than property make up Type A. Despite this classification, there are no differences in terms of the recognition of a right-of-use asset and a lease liability; the difference lies in the presentation of the expense in the income statement. For Type A leases, the unwinding of the discount on the lease liability appears as interest separated from the amortisation of the asset, but for Type B leases a single lease expense is recorded, therefore the operating profit is contaminated by the financing costs. The total lease expense decreases in a Type A lease, and is constant in a Type B lease, given that the amortisation is obtained as a difference (rental expense minus the interest). As for the measurement of assets and liabilities, there were some changes compared with ED 2010.\(^7\) Stakeholders’ participation was also very high; 641 comment letters were received. Once again, the response rate of preparers and industrial organisations accounted for two-thirds of total responses.\(^8\)

Given that the convergence era is formally over, it is not surprising that the 2016 approved standards differ. IFRS 16, issued on 13 January (IASB 2016a), and Accounting Standards Update (ASU) No. 2016-02 (Topic 842), issued on 25 February (FASB 2016), have reached the same conclusions on the main aspects and both impose the capitalisation of all leases,\(^9\) but maintain some differences. The IASB follows ED 2010 and imposes a single model for all leases (in fact it does not refer to operating and finance leases at all). However, the FASB keeps a dual model along the lines of ED 2013 and retains a distinction between operating and finance leases, which affects the recognition of the lease expense in the income
statement (as well as the cash flow statement). When the lease is classified as operating (Type B in ED 2013), the annual expense, which is generally constant throughout the duration of the lease contract, is captured as a single expense in the income statement (as in current IAS 17). It should be noted that the accounting change also removes the lease instalments from EBITDA (earnings before interest, tax, depreciation and amortisation), which is the most widely watched measure of firms’ underlying profitability.\(^\text{10}\) Consequently, under US GAAP, operating leases will show a lower EBITDA than finance leases (Type A in ED 2013), which might create some incentives for such a classification.\(^\text{11}\) Although some argue that in certain cases the recognition of a single expense will better reflect the benefit that the lessee receives evenly over the lease term, others argue that as long as leases create assets and liabilities, it makes sense to separate the depreciation from the interest expense. However, as summarised by Spencer and Webb (2015) this disaggregation appears useful to users. In the view of the Chairman of the IASB, the IASB’s approach is conceptually better, while the FASB’s approach is based on a cost–benefit assessment (WAR 2015: 3).

Before concluding this section, we should refer to the last step of the due process, that is, the post-implementation review that the IASB makes two years after implementing a standard or an amendment. Given the characteristics of value-relevance studies, it is not possible to have a series of data to perform an analysis after the application of IFRS 16. Therefore, a study such as this, which measures as-if liabilities, could be useful in that regard.

**Literature Review and Hypothesis Development**

**Literature review**

Without precluding that the use of leases may be explained by economic incentives, in particular financial difficulties linked with the repossession advantage, cost savings linked with tax benefits to the lessor and alleviation of the asset substitution problem (Lewis and Schallheim 1992; Graham et al. 1998; Eisfeldt and Rampini 2009), it is not less true that accounting standards also play an important role. Hence, it is widely evidenced that firms used all types of leases before IAS 17 and SFAS 13 were in force, while afterwards preferred to use operating leases due to their advantageous accounting treatment (Imhoff and Thomas 1988; Cornaggia et al. 2013; Grönklund et al. 2013).\(^\text{12}\) Moreover, Beatty et al. (2010) document that firms with information asymmetries due to poor accounting quality are more likely to engage in operating lease transactions – which in essence amounts to off-balance financing. To the extent that other parties do not properly assess the firm’s financial position, the firm might benefit from such information remaining private. Indeed, it is this undesired consequence of the current standards that underlies the changes introduced by the IASB and the FASB.

One of the main arguments against the capitalisation of these assets, as well as the related liabilities, is that it might have negative economic consequences for firms, as it could impact upon some financial ratios used as debt covenants (Beattie et al. 1998; Bennet and Bradbury 2003; Fülbier et al. 2008; Duke et al. 2009; Cornaggia et al. 2013). Specifically, it is argued that the impact should be larger for those firms with more financial constraints, as they use operating leases more frequently (Eisfeldt and Rampini 2009). Nevertheless, others question this concern and argue that OBS leases are considered *ex ante* when negotiating debt arrangements (Demerjian 2011; Paik et al. 2015). They document that balance sheet covenants are not so frequently used by firms that intensively use this type of financing. ‘Further, we find that firms with sizable OBS lease exposure avoid the use of balance sheet ratios and increase the use of covenants with income-statement-based ratios more so than firms with low OBS lease exposure’ (Paik et al. 2015: 991).

Regarding the influence of this OBS financing on market users, while US papers find that users take these items into account when measuring firm risk (Ling et al. 2012; Altamuro et al. 2014), some conclude that the capitalisation of operating leases would improve economic decisions (Cornaggia et al. 2013; Cotten et al. 2013). Comparing the association between the cost of capital and recognised finance lease liabilities and as-if liabilities derived from operating leases, Bratten et al. (2013) find that only when the disclosed and recognised amounts are salient and have similar reliability and processing costs, are there no differences between these alternative accounting treatments. Furthermore, Dhalwal et al. (2011) conclude that investors use OBS operating leases when assessing the firm’s equity risk, although they may treat them differently to capital leases. In the authors’ view, this could be explained by either (i) different market perception due to the location of the information or (ii) measurement errors in computing the off-balance liabilities. Callahan et al. (2013) capitalise synthetic lease liabilities in the period before FIN 46 and compare their market valuation with capitalised leases after the adoption of the new standard.\(^\text{13}\) They find that the value relevance of the liabilities increased after its adoption; in their view reliability also increased due to the enhanced transparency associated with the new accounting treatment.

With regard to the UK market, Beattie et al. (2000) emphasise that debts derived from the capitalisation of operating leases are positively related to measures of risk.
capital, but contribute less than other debts. This leads
the authors to question whether the market adjusts eq-

uity risk appropriately for unrecorded operating lease li-
abilities. Moreover, in a very recent study commissioned by EFRAG to assess ex ante the impact of IFRS 16, Europe Economics (2017) concludes that despite the different treatment of operating lease obligations for accounting purposes, market participants seem to capture this type of liability in their current decision making. The liability associated with a fully capitalised operating lease is an important variable in determining bond yields, and the magnitude of this impact is statistically equivalent to the magnitude of the impact of debt liabilities. In other words, market users do not underestimate the information disclosed compared with that recognised in the balance sheet.

The US debt market is the focus of attention for Lim et al. (2017) and Sengupta and Wang (2011). Both papers evidence that market participants price operating lease commitments, but while the former paper finds that recognised liabilities have a stronger effect than disclosed ones, the second paper does not find any difference. Altamuro et al.’s (2014) results support that credit market participants and credit rating agencies incorporate information about OBS operating leases into their credit assessments. Together, this prior evidence suggests that market users view operating leases as conveying property rights, as well as obligations to the lessee, but it is not obvious if the recognition of those assets and liabilities in the balance sheet will make any difference.

On the contrary, experimental studies conclude that investors that buy/sell stocks, as well as those making decisions about granting loans, react differently to leases included in the balance sheet or reported in the notes. This is common in early papers related to the capitalisation of finance leases (e.g., Munter and Ratcliffe 1983; Wilkins and Zimmer 1983; Breton and Taffler 1995), and in more recent studies by Hales et al. (2012) and Nelson and Taylor (2007) referring to the capitalisation of operating leases. Nelson and Taylor (2007) argue that when users constructively capitalise operating leases, their decisions are more affected by this information than if leases were recognised from the outset, partially due to the larger effort made when off-balance information is under analysis. Therefore, these results suggest some sort of bias due to the accounting treatment.

Hypothesis development

In this study, we first investigate whether current disclosures on operating leases are value relevant in a context that has not been studied before, that is, the Spanish market. To that end, we undertake an ex ante analysis, in which estimated as-if liabilities are proxies for the current off-balance ones; thus, our null hypothesis is:

\[ H1: \text{Market users do not value disclosure about operating leases to establish equity prices.} \]

This hypothesis is related to the well-known debate on disclosure versus recognition. Despite not referring specifically to the topic under study, there are a number of papers that are relevant to our case. Aboody (1996) deals with the oil and gas industry, and analyses how disclosing or recognising changes in value affects market returns. Davis-Friday et al. (2004) examine the perceived reliability of liabilities for retiree benefits other than pensions disclosed prior to and after the adoption of SFAS 106, which imposed recognition. Ahmed et al. (2006) refer to recognised and disclosed derivatives prior to SFAS 133, and they also compare pre- and post-SFAS 133 information, which required recognition instead of disclosure. Callahan et al. (2013), who constructively capitalise synthetic lease liabilities in the period preceding FIN 46, compare their market valuation with capitalised leases after FIN 46. These studies conclude that market participants pay more attention to recognised items than disclosed information. Shah et al. (2013) examine the value relevance of research and development in two different scenarios: pre- and post-IFRS, as the capitalisation of development was not required by UK GAAP before IFRS; unlike prior results, theirs do not confirm differences between disclosed and recognised information.

Next, we analyse if there are differences between disclosure and recognition, that is, between as-if liabilities and recognised debts. The ‘rational differences’ view posits that the location of the information affects decision usefulness, and the ‘user characteristics’ view states that cognitive factors induce differences in how recognised and disclosed items are used. These two theories complement each other and suggest that the two locations convey different processing costs (Barth et al. 2003). Indeed, the information in the primary financial statements is easier to obtain from commercial databases, while the information in the notes has to be hand-collected. As Bloomfield (2002) states, the costs of extracting useful statistics from public data keep markets from fully revealing the meaning of those statistics. In addition, Hirshleifer and Teoh (2003) posit that investors have ‘limited attention’ ability, so they are imperfect processors of publicly available information, and information presented in a salient, easily processed form is assumed to be absorbed more easily than other less salient information. Moreover, as Schipper (2007: 324) argues, ‘reliability differences exist, and may be due to differences in the preparation and auditing of disclosed versus recognised amounts, as opposed to intrinsic differences’. More recently Müller et al. (2015) evidence that
both processing costs and reliability differences explain the discount investors apply to disclosed information on fair value for investment properties compared with recognised values. Based on the above arguments, we state the following null hypothesis:

**H2: Market users equally value recognised debts and disclosed liabilities.**

Next, we investigate if investors value information differently regardless of the way they perceive it. Bratten et al. (2013) provide evidence that less-reliable imputed values of operating lease obligations (the ‘thereafter’ portion) are less strongly related to the cost of capital. It should be considered that according to paragraph 35 in IAS 17 (IASB 2003), lessees have to disclose separately: (i) payments due the year after reporting; (ii) payments due in the period two to five years after reporting; and (iii) payments due after five years, the ‘thereafter’ portion. As the information about longer-term leases is less precise, more assumptions are needed to establish the as-if liability, which might affect the way investors price it. Thus, the third null hypothesis is:

**H3: Market users value as-if liabilities regardless of their perceived reliability.**

Finally, as mentioned above, leasing propensity depends on agency and contracting costs due to asset substitution and other related problems, amongst other considerations. Therefore, firms in industries with assets that make good collateral might be more prone to this type of financing, which provides creditors with more security, higher priority in bankruptcy as the repossession advantage suggests, and an effective way of reducing information asymmetries (Eisfeldt and Rampini 2009). It is widely documented that leasing is more prevalent in the retailing and air transport industries (Finucane 1988; Imhoff et al. 1991; Goodacre 2003; Bryan et al. 2010; IASB 2016b). Based on the materiality and magnitude of these transactions in these industries, we argue that investors might look at the notes more thoroughly in retailing firms than in others. Thus, our last null hypothesis is as follows:

**H4: Market users value as-if liabilities regardless of the industry to which firms belong.**

**Sample and Research Methodology**

**Sample**

As already mentioned, the paper investigates Spanish non-financial listed firms; therefore, the initial sample comprises 132 firms, which represents the whole population in the Madrid Stock Exchange. The period under analysis is 2010–2013. Given that not all firms provide information on operating leases in the notes, the sample is reduced to 263 observations corresponding to 70 firms. After excluding five observations without market data, 23 with negative book value and six outliers, our final sample includes 229 observations.

Data on future minimum operating lease payments, finance leases, bank loans, operating lease rentals and market prices at the date of publication of the financial statements were manually gathered. Additional data were collected from the Sistema de Análisis de Balances Ibéricos (SABI) database. Table 1 provides the industry classifications, and not surprisingly, about 50% of the observations belong to the retail sector, either goods or services.

**Research methodology**

We calculate as-if liabilities using the constructive method, which considers operating leases as finance leases since their inception (see Fülbier et al. 2008). This method produces decreasing lease payments, which is consistent with having several contracts with different lengths. Off-balance lease liabilities are measured as the present value of the future minimum lease payments disclosed in the notes (assumptions are necessary to disaggregate the information reported). Appendix 1 provides a detailed description of the constructive method.

In order to apply the method some assumptions about the interest rate, the tax rate and the proportion of total lease life expired are needed. Regarding the interest rate and the tax rate, we use company-specific values. When firms do not provide interest rates, we use the discount rate employed for pensions and other provisions. We approximate the missing rates for the median of those disclosed, 4.36%. The tax rate is obtained by dividing the tax expense by earnings before taxes (EBT) for each year. When EBT is negative or there is no tax expense, we use the median of the estimated tax rates, 25%. To determine the unrecorded asset, we assume that the ratio of remaining life to total life is 50%, which has a minimal effect on the current income figure. In a sensitivity test, we also consider 60%.

### Table 1 Industry classifications

<table>
<thead>
<tr>
<th>Industry</th>
<th>Firm-years</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>28</td>
<td>12.2%</td>
</tr>
<tr>
<td>Construction and manufacturing</td>
<td>62</td>
<td>27.1%</td>
</tr>
<tr>
<td>Retail goods</td>
<td>72</td>
<td>31.4%</td>
</tr>
<tr>
<td>Retail services</td>
<td>43</td>
<td>18.8%</td>
</tr>
<tr>
<td>Real estate companies</td>
<td>5</td>
<td>2.2%</td>
</tr>
<tr>
<td>Technology</td>
<td>19</td>
<td>8.3%</td>
</tr>
<tr>
<td>Total</td>
<td>229</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Notes: Classifications provided by the Madrid Stock Exchange.
Value-relevance analysis

Given that this study is performed before the obligation to capitalise operating leases is in force, it is not possible to directly compare the relevance of as-if liabilities with a real situation in which operating leases are capitalised. Instead, we use recognised debts as a benchmark for the as-if liability derived from operating leases.

To find out if market participants perceive off-balance elements in the same way as recognised items, we undertake a value-relevance study. The fundamental assumption is that the stock price captures the underlying economic value of the firm as perceived by investors. Therefore, following Barth et al. (1998a), the basic valuation model is:

$$MVE = BVE + UNA$$  \hspace{1cm} (1)

where $MVE$ is the market value of common equity; $BVE$ is the market value of recognised net assets; and $UNA$ is the unrecognised net assets.

As the variables on the right-hand side are unobservable, accounting variables are used to obtain the testable models. However, book values do not equal fair values nor is $UNA$ directly observable. Thus, as in Barth et al. (1998a), earnings is included as an additional explanatory variable, which can be seen as a proxy for variables omitted from the prior theoretical model. The rationale for this addition is as follows: as there are no market values for all the items on the right-hand side, another item should be added to capture both the unrecognised ones, and the valuation differences. This asset, known as goodwill, is measured as the current value of future abnormal earnings, for which net income acts as a proxy. This model is consistent with the modified Ohlson (1995) model, which is the basis of conventional market-based accounting research. Moreover, as we are interested in unrecognised liabilities derived from off-balance lease transactions, we also add them in the empirical version of model (1).

There is a vast literature based on the model that refers to the value relevance of disclosed elements. To that end, in the research design either book value or net income, or even both, are normally decomposed. Thus, in the US, Barth et al. (1998b) look at estimated brands, whilst Bryant (2003) analyses two alternative accounting methods for exploration and development expenditures for oil and gas firms. A pre- and post-IFRS study in the UK, performed by Shah et al. (2013), examines the change from disclosure to capitalisation of development expenses. The value relevance of the IFRS reconciliation adjustments from Spanish GAAP is analysed by Aledo et al. (2014); the Spanish setting is also considered by Reverte (2016), who looks at the relevance of corporate social responsibility disclosure. Goh et al. (2016) focus on recognition and disclosure of stock options in France. In other papers, such as Kallapur and Kwan (2004), who look at the market valuation of brands by 33 UK firms, and Chalmers et al. (2008), who compare the value relevance of capitalised goodwill and identifiable intangible assets under the two Australian accounting regimes, the AGAAP and the AIFRS, book value has been adjusted. More recently, Badenhorst and Ferreira (2016) analyse the impact of the financial crisis on the value relevance of deferred tax assets in Australia and the UK.

As in prior value-relevance literature, the basic model we use is consistent with Ohlson’s (1995) framework, but we add the as-if liabilities derived from the disclosed information to test Hypothesis 1:

$$MVE_{it} = \beta_0 + \beta_1 BVEadj_{it} + \beta_2 OLL_{it}$$

$$+ \beta_3 NI_{it} + \epsilon_{it}$$  \hspace{1cm} (2)

where $MVE_{it}$ is the market value of equity of firm $i$ at the date of publication of the financial statements of fiscal year $t$; $BVEadj_{it}$ is the original book value of firm $i$ at time $t$ adjusted for the operating lease assets, otherwise there would be an omitted correlated variable, resulting in the coefficient on the capitalised operating lease liability capturing the net effect of operating lease activity; $OLL_{it}$ is the adjustment of liabilities as a result of capitalising operating leases for firm $i$ in year $t$; $NI_{it}$ is net income of firm $i$ for period $t$.

In order to test Hypothesis 2, that is, if investors price off-balance liabilities differently from recognised liabilities, they are also added in model (2). The book value of equity has to be readjusted to exclude them (otherwise, they would be double-counted). Thus, we establish the following model:

$$MVE_{it} = \beta_0 + \beta_1 BVEadj_{it} + \beta_2 RL_{it} + \beta_3 OLL_{it}$$

$$+ \beta_4 NI_{it} + \epsilon_{it}$$  \hspace{1cm} (3)

where $BVEadj_{it}$ is the original book value of firm $i$ at time $t$ adjusted by the operating lease assets and the recognised liabilities; $RL_{it}$ is the recognised liabilities for firm $i$ in year $t$; other variables are mentioned above.

As we discuss in more detail in the next section, we have used two recognised debts as benchmarks: finance lease liabilities (as in Bratten et al. 2013) and bank loans (as in Europe Economics 2017). While the former liabilities are closer to operating leases, they are less visible in the financial statements (collected manually) than the latter; thus, its value relevance could be conditioned to the already explained theories of ‘rational differences’ and ‘user characteristics’.

To test the third hypothesis, an indicator variable is introduced that interacts with the operating lease liability variable, and captures the differential value of the
Table 2 Descriptive statistics

Panel A: Descriptive statistics of variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>MVE</th>
<th>BVEadj</th>
<th>OLL</th>
<th>FLL</th>
<th>Loans</th>
<th>NI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>9.626</td>
<td>9.815</td>
<td>1.534</td>
<td>0.232</td>
<td>9.344</td>
<td>0.380</td>
</tr>
<tr>
<td>Median</td>
<td>5.350</td>
<td>4.371</td>
<td>0.206</td>
<td>0.020</td>
<td>2.760</td>
<td>0.196</td>
</tr>
<tr>
<td>St. dev.</td>
<td>12.008</td>
<td>14.735</td>
<td>6.704</td>
<td>0.460</td>
<td>21.636</td>
<td>1.755</td>
</tr>
<tr>
<td>Maximum</td>
<td>75.000</td>
<td>96.757</td>
<td>68.338</td>
<td>2.529</td>
<td>153.193</td>
<td>4.834</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.110</td>
<td>0.001</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>−12.022</td>
</tr>
</tbody>
</table>

Panel B: Descriptive statistics of variables by subgroups of industry

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>St. dev.</th>
<th>Retail</th>
<th>Non-retail</th>
<th>Mean difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVE</td>
<td>8.559</td>
<td>10.703</td>
<td>11.863</td>
<td>12.109</td>
<td>1.354</td>
</tr>
<tr>
<td>BVEadj</td>
<td>7.577</td>
<td>12.073</td>
<td>12.350</td>
<td>16.553</td>
<td>2.331**</td>
</tr>
<tr>
<td>OLL</td>
<td>2.421</td>
<td>0.640</td>
<td>9.330</td>
<td>1.118</td>
<td>−2.024**</td>
</tr>
<tr>
<td>FLL</td>
<td>0.152</td>
<td>0.313</td>
<td>0.364</td>
<td>0.528</td>
<td>2.697***</td>
</tr>
<tr>
<td>Loans</td>
<td>3.676</td>
<td>15.062</td>
<td>5.142</td>
<td>29.192</td>
<td>4.119***</td>
</tr>
<tr>
<td>NI</td>
<td>0.333</td>
<td>0.428</td>
<td>0.994</td>
<td>2.284</td>
<td>0.411</td>
</tr>
</tbody>
</table>

Notes: MVE is the market value of equity; BVEadj is the original book value of equity adjusted by the operating lease assets; OLL is the adjustment of liabilities as a result of capitalising operating leases; FLL is finance lease liabilities; Loans is bank loans; NI is net income. All variables are scaled by number of shares outstanding. ** = 1% significance; * = 5% significance; * = 10% significance.

liabilities perceived as less reliable. Given the less granular information about long-term liabilities, we understand investors might attach a lower multiple to them than to liabilities to be paid in a shorter horizon. Consequently, we expand the model as follows:

\[
MVE_{it} = \beta_0 + \beta_1 BVEadj_{it} + \beta_2 RL_{it} + \beta_3 OLL_{it} + \beta_4 NI_{it} + \beta_5 D + \beta_6 D * OLL_{it} + \epsilon_{it} \tag{4}
\]

where, in addition to the variables already defined, D is an indicator variable that equals one if the ratio of non-current operating lease liabilities divided by total operating lease liabilities is larger than the median, and zero otherwise.

To test Hypothesis 4, we employ a model similar to model (4) where the indicator variable D captures the industry, and is one if the observation belongs to a retail industry, and zero otherwise.

As in most of the value-relevance literature (e.g., Barth et al. 1998b; Chalmers et al. 2008; Shah et al. 2013; Aledo et al. 2014; Badenhorst and Ferreira 2016; Reverte 2016; Khan et al. 2017), we use a share price specification model in order to mitigate the potential for incorrect inferences based on size differences (the ‘scale effect’). Barth and Clinch (2009) find the undeflated specification model to be less effective than scaling with number of shares. Significance tests are based on Petersen’s (2009) procedure. It estimates clustered robust standard errors that are robust to heteroskedasticity, serial and cross-sectional correlation with a two-dimensional cluster at the firm and year level, for the main regression models. Moreover, in order to control for industry- and year-specific effects, models are estimated using industry and year dummies.

Analyses and Results

Descriptive statistics

Table 2 summarises the descriptive statistics of the variables used in the value-relevance analysis. Panel A includes the figures for the total sample. The mean of finance lease liabilities (0.232) is very small, about 15% of as-if liabilities due to operating leases (1.534), and about 2.5% of bank loans (9.344). The median value of finance leases in relation to total liabilities is 0.3%, while the median value of bank loans in relation to total liabilities is 46.7% (non-reported figures). In Panel B, we compare the retail sector with other sectors. The mean difference tests confirm they have different financial structures. While on average retailers have more operating leases than non-retailers, the former group has fewer financial leases and bank loans than the latter. These differences are statistically significant, as the t-test shows.

Table 3 reports the Pearson correlation coefficients among the variables used in the regression analyses. Some correlations are very high and statistically significant at the 1% level, such as those between BVEadj and Loans (0.729), and BVEadj and OLL (0.484). We conduct tests of multicollinearity for all models and find that none of the mean variance inflation factors (VIFs) exceeds the critical value of 10. Thus, we conclude that multicollinearity is not an issue of concern in this study.
Table 3 Pearson correlations

<table>
<thead>
<tr>
<th></th>
<th>MVE</th>
<th>BVEadj</th>
<th>OLL</th>
<th>FLL</th>
<th>Loans</th>
<th>NI</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVE</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVEadj</td>
<td>0.589**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OLL</td>
<td>−0.012</td>
<td>0.484***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLL</td>
<td>0.187**</td>
<td>0.386***</td>
<td>0.255***</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loans</td>
<td>0.407***</td>
<td>0.729***</td>
<td>0.088</td>
<td>0.286***</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>NI</td>
<td>0.462***</td>
<td>0.324***</td>
<td>0.122**</td>
<td>0.134</td>
<td>0.103</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Notes: MVE is the market value of equity; BVEadj is the original book value of equity adjusted by the operating lease assets; OLL is the adjustment of liabilities as a result of capitalising operating leases; FLL is finance lease liabilities; Loans is bank loans; NI is net income. All variables are scaled by number of shares outstanding. ** = 1% significance; *** = 5% significance; * = 10% significance.

Table 4 Value relevance models (H1) and (H2)

<table>
<thead>
<tr>
<th>Model (2)</th>
<th>Model (3) FLL</th>
<th>Model (3) Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.019</td>
<td>2.971</td>
</tr>
<tr>
<td>[1.220]</td>
<td>[1.204]</td>
<td>[1.454]</td>
</tr>
<tr>
<td>BVEadj</td>
<td>0.588***</td>
<td></td>
</tr>
<tr>
<td>[6.242]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVEadj</td>
<td>0.577***</td>
<td>0.766***</td>
</tr>
<tr>
<td>[5.486]</td>
<td>[5.932]</td>
<td></td>
</tr>
<tr>
<td>RL</td>
<td>0.473</td>
<td>−0.902***</td>
</tr>
<tr>
<td>[0.328]</td>
<td>[−4.904]</td>
<td></td>
</tr>
<tr>
<td>OLL</td>
<td>−0.750***</td>
<td>−0.759***</td>
</tr>
<tr>
<td>[−5.838]</td>
<td>[−6.283]</td>
<td>[−6.483]</td>
</tr>
<tr>
<td>NI</td>
<td>1.925**</td>
<td>1.925***</td>
</tr>
<tr>
<td>[2.595]</td>
<td>[2.618]</td>
<td>[2.182]</td>
</tr>
<tr>
<td>Industry controls</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year controls</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.555</td>
<td>0.554</td>
</tr>
</tbody>
</table>

Notes: MVE is the market value of equity; BVEadj in model (2) is the original book value of equity adjusted by the operating lease assets; BVEadj in model (3) recognised liabilities are also adjusted; RL is the recognised liabilities (FLL is finance lease liabilities; Loans is bank loans); OLL is the adjustment of liabilities as a result of capitalising operating leases; NI is net income. All variables are scaled by number of shares outstanding. ** = 1% significance; *** = 5% significance; * = 10% significance. t statistics for the regression coefficients are reported in parentheses.

Multivariate analysis

Table 4 reports the results for basic model (2), as well as model (3) using finance lease liabilities in column 3 and bank loans in column 4. The operating lease liability variable is significant at 1%, with the expected negative sign in the three regressions (it varies from −0.750 to −0.889), which suggests that investors perceive as-if operating lease liabilities as liabilities, and allows us to reject Hypothesis 1.

Regarding Hypothesis 2, the finance lease liabilities variable in column 3 is not significant, while the coefficient on the loan variable (−0.902) in column 4 is significant at 1%. The Wald test confirms that there are no differences between the coefficients on operating lease liabilities and loans (F = 0.901). This result does not allow us to reject Hypothesis 2. On the contrary, it looks as if investors do not perceive differences between information disclosed and recognised in the primary financial statements. This result might question not only the need for a new standard that modifies the current status, but the reluctance of firms to agree with it. Notwithstanding, one should think about other users of financial statements, mainly creditors, and the impact of the new standards on existing covenants, before reaching such a conclusion.

Other variables have coefficients that are also highly significant and consistent with the Ohlson (1995) framework. Thus, the readjusted book value of equity ranges from 0.577 to 0.766 (between zero and one), while net income ranges between 1.708 and 1.925 (higher than one). The adjusted R² for the model goes from 55% to 57%.

The lack of significance of the finance lease variable needs some discussion, however. The underlying variable distribution has low variability, as the standard deviation in Table 2 displays. Non-reported results show that the within-group standard deviation (i.e., over time for a firm in a given industry) is quite low, in fact the lowest of all variables in the study, and the between groups (i.e., between industries) is low as well. Consequently, the statistical significance of the coefficient may only come from the variability of the finance lease variable between groups. Once the industry-specific effects are taken into account in the estimation, this variability disappears, and only the low within-groups variability remains.

In Table 5, we provide the results of model (4). In column 2 the coefficient on the shorter-term as-if operating lease liabilities (β₁) is negative (−1.060), while the one on the interaction term (β₂) is significant and positive (0.213). Thus, the coefficient on the less-reliable perceived liabilities (β₁+β₂) remains negative (−0.847), smaller (in absolute value) and significant at 1%. However, the Wald test does not allow us to reject that either the coefficient on the short-term liabilities or the one on the longer-term ones differs from the bank loan coefficient. Hence, we are not able to reject Hypothesis 3 on the perceived reliability differences in the value relevance of the operating lease liabilities, so we cannot sustain that investors perceive differences in the reliability of as-if liabilities.

In column 3, we report the results of testing Hypothesis 4. Here the interaction term (D*OLL) captures the incremental effect due to the retail sector. The operating lease liabilities are not significant for the non-retail sector, while in the retail sector the coefficient (β₁+β₂) is negative (−0.874) and significant at 1%. The Wald test confirms there are no differences between the
coefficients on operating lease liabilities and bank loans ($F = 0.01$) in the retail sector. This result allows us to reject Hypothesis 4, given that it is only in the retail sector that investors care about as-if liabilities. Other coefficients are consistent with the Ohlson framework.

**Robustness Checks**

As a robustness check, we replicate the analysis introducing changes in the assumptions made to apply the constructive method. First, we use a fixed interest rate of 5%. Second, we simplify the estimation by considering the undiscounted operating lease liabilities. We also apply a simple factor (heuristic) method, which involves multiplying the annual operating lease rentals by a factor of eight to estimate the total operating lease liabilities (Beattie et al. 2000). In this last analysis, the number of observations is slightly lower (218), as the annual operating lease rental (manually collected) is not always available. The results for both models 2 and 3 appear in Table 6, and are basically the same as those shown earlier. The coefficients on as-if operating lease liabilities are always highly significant and negative, for model (2) (between $-0.775$ and $-0.396$), and for model (3) (between $-0.919$ and $-0.420$). The coefficients on the recognised liabilities, in model (3), are negative and significant at 1% (between $-0.903$ and $-0.683$). However, the coefficient on as-if operating lease liabilities is only equal to the bank loan coefficient when the constructive method is

<table>
<thead>
<tr>
<th>Table 5 Value relevance models (H3) and (H4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model (4): $MV_{Et} = \beta_0 + \beta_1 BVE_{readj_{it}} + \beta_2 RL_{it} + \beta_3 OLL_{it} + \beta_4 NI_{it} + \beta_5 D + \beta_6 D * OLL_{it} + \epsilon_{it}$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Reliability (H3)</th>
<th>Industry (H4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>4.034</td>
<td>2.318</td>
</tr>
<tr>
<td>$BVE_{readj}$</td>
<td>0.766***</td>
<td>0.740***</td>
</tr>
<tr>
<td>$RL_{it}$ (Loans)</td>
<td>$-0.901***$</td>
<td>$-0.880***$</td>
</tr>
<tr>
<td>$OLL_{it}$</td>
<td>$-1.060***$</td>
<td>0.978</td>
</tr>
<tr>
<td>$NI_{it}$</td>
<td>1.683**</td>
<td>1.856***</td>
</tr>
<tr>
<td>$D_{it}$</td>
<td>$-1.134$</td>
<td>2.523**</td>
</tr>
<tr>
<td>$D_{it}^*OLL_{it}$</td>
<td>0.213**</td>
<td>$-1.852**$</td>
</tr>
<tr>
<td>Industry controls</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Year controls</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.572</td>
<td>0.570</td>
</tr>
<tr>
<td>$\beta_{1}+\beta_{2}$</td>
<td>$-0.847$</td>
<td>$-0.874$</td>
</tr>
<tr>
<td>$F$ value, $Pr&gt;F$</td>
<td>36.37***</td>
<td>67.55***</td>
</tr>
</tbody>
</table>

Notes: $MV_{E}$ is the market value of equity; $BVE_{readj}$ is the original book value of equity adjusted by the operating lease assets and recognised liabilities; $RL_{it}$ is the recognised liabilities (bank loans); $OLL_{it}$ is the adjustment of liabilities as a result of capitalising operating leases; $NI_{it}$ is net income; $D$ is an indicator variable that takes a value of one if the observation has a Non-current OLL/Total OLL ratio larger than the median ratio (zero otherwise). All variables are scaled by number of shares outstanding. *** = 1% significance; ** = 5% significance; * = 10% significance. $t$ statistics for the regression coefficients are reported in parentheses.

<table>
<thead>
<tr>
<th>Table 6 Sensitivity tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model (2): $MV_{Et} = \alpha_0 + \alpha_1 BVE_{readj_{it}} + \alpha_2 RL_{it} + \alpha_3 OLL_{it} + \alpha_4 NI_{it} + \epsilon_{it}$</td>
</tr>
<tr>
<td>Model (3): $MV_{Et} = \alpha_0 + \alpha_1 BVE_{readj_{it}} + \alpha_2 RL_{it} + \alpha_3 OLL_{it} + \alpha_4 NI_{it} + \epsilon_{it}$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interest rate (5%)</th>
<th>Undiscounted liabilities</th>
<th>Factor method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model (2)</strong></td>
<td><strong>Model (3)</strong></td>
<td><strong>Model (2)</strong></td>
</tr>
<tr>
<td>Intercept</td>
<td>2.997</td>
<td>3.541</td>
</tr>
<tr>
<td>$[1.209]$</td>
<td>$[1.442]$</td>
<td>$[1.204]$</td>
</tr>
<tr>
<td>$BVE_{readj}$</td>
<td>0.589***</td>
<td>[6.232]</td>
</tr>
<tr>
<td>$RL_{it}$ (Loans)</td>
<td>0.767***</td>
<td>[5.937]</td>
</tr>
<tr>
<td>$OLL_{it}$</td>
<td>$-0.903***$</td>
<td>$-4.912$</td>
</tr>
<tr>
<td>$NI_{it}$</td>
<td>$-0.775***$</td>
<td>$-5.834$</td>
</tr>
<tr>
<td>Industry controls</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year controls</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.555</td>
<td>0.573</td>
</tr>
</tbody>
</table>

Notes: $MV_{E}$ is the market value of equity; $BVE_{readj}$ in model (2) is the original book value of equity adjusted by the operating lease assets; $BVE_{readj}$ in model (3) recognised liabilities are also adjusted; $RL_{it}$ is the recognised liabilities (bank loans); $OLL_{it}$ is the adjustment of liabilities as a result of capitalising operating leases; $NI_{it}$ is net income. All variables are scaled by number of shares outstanding. *** = 1% significance; ** = 5% significance; * = 10% significance. $t$ statistics for the regression coefficients are reported in parentheses.
used ($F = 0.02$); when other methods are employed, the OLL coefficient is smaller (in absolute terms). This result is consistent with the experimental study by Nelson and Taylor (2007) which concludes that users pay more attention to constructively capitalised leases. In essence, these results confirm that as-if operating lease liabilities are valued by investors, regardless of the estimation method used or the assumptions made.

We have replicated the analysis using a 60% ratio of remaining life to total life, and we have also used an interest rate of 10%. Non-reported results remain consistent.

**Conclusions**

The new IASB and FASB models for lease standards require the recognition of assets and liabilities for all leases. It is argued that the new treatment will improve the quality of financial reporting, as nowadays, ‘Even sophisticated equity analysts struggle to understand the obscure and complex leasing arrangements some companies engage in, making it hard to put a fair value on their shares’ (Economist 2013).

Aiming to shed light on the effect of the accounting change for operating leases, our research studies whether market users look at the information in the notes, in particular, whether they consider as-if liabilities due to operating leases when establishing market prices. To that end, we consider Spanish listed firms during the period 2010–2013, and analyse the effect of including the liabilities derived from operating leases and related assets in the balance sheet of the lessees. We apply the constructive capitalisation method, with which we adjust the consolidated financial statements, and obtain some as-if information, before performing a value-relevance analysis.

Our results confirm that the market views operating leases as liabilities, which is consistent with the recent research by Europe Economics (2017), and suggest investors perceive that all leases are property rights. Moreover, it seems investors do not value as-if liabilities any differently from other recognised liabilities, in particular bank loans, and, contrary to the findings of Bratten et al. (2013), they do not perceive reliability differences due to the less granular information on long-term contracts. Not surprisingly, these results appear to be driven by the retail sector, given that as-if liabilities are not significant in other sectors. Overall, these results suggest investors in code-law countries with less developed markets and low enforcement quality do not behave differently to those in common-law countries that have more developed markets and enforcement, and pay attention not only to recognised items but also to disclosed information. To some extent, the no-difference result between operating lease liabilities and bank loans is rather unexpected. Indeed, one might have thought that the repossessing advantage of leases versus foreclosing on the collateral of a secured loan could have conveyed a smaller coefficient (in absolute terms) for leases, but this does not appear to be the case. Having said that, we should consider that there are other less sophisticated users who perhaps do not adjust the balance-sheet items to take as-if liabilities into account, so that the accounting change could benefit their decision-making process.

In our view, this is a timely research paper that could be useful from the standard-setting perspective, particularly when the post-implementation review takes place. Moreover, it is our belief that our results could provide some comfort to managers in the most affected industries, as they suggest the change will not have a major impact on the stock exchange. Nevertheless, we should point out that we do not exclude that the capitalisation of assets, and mainly liabilities, might affect debt covenants. Therefore, we think it is a good time to start renegotiations with banks to avoid surprises later on. The extent to which this change could also affect private companies is unknown at this moment. Although Regulation 1606/2002 only requires the use of IFRS for consolidated statements of public firms, it gives European countries the liberty to widen their application of IFRS by allowing or imposing its use to individual statements as well as to private companies. Furthermore, in some countries, such as Spain, local rules tend to be regularly updated to avoid discrepancies with IFRS.

Before concluding, we should note some limitations of the study. The first is the sample size. Although we study a relatively large market, only firms that disclose operating lease information in the notes could be considered. We understand that those firms that do not disclose do not have these contracts, but this may not be the case. Second, we base the estimation of off-balance assets and liabilities on a well-accepted and sophisticated approach (the constructive method) that requires a number of assumptions, and although we not only perform robustness checks but also undertake a sensitivity test using the simple factor method, perhaps neither approach truly captures investors’ behaviour. Third, we have employed a crude proxy to capture perceived reliability, which could explain the no results in this analysis.

After the implementation of the new accounting standards (when operating leases are capitalised), we could undertake a more refined analysis and distinguish between the pre-recognition (or disclosure) period and the post-recognition period. Such a study would constitute an extension of the current research. Nevertheless, ours can be seen as a first step to be considered in the post-implementation review of IFRS 16.

**Notes**

1 SFAS 13 considers that a lease is a capital one if one or more of the following criteria are satisfied: (1) transfer of property ownership to the lessee; (2) bargain purchase option; (3) lease term is
75% or more of the estimated economic life of the leased property; or (4) the present value of the minimum lease payments is 90% or greater of the leased asset’s fair value at the beginning of the lease term. However, IAS 17 classifies a lease as a finance one if it transfers substantially all the risks and rewards incidental to ownership, which depends on the substance of the transaction rather than the form of the contract. To help with that decision, it provides some examples that are similar to those conditions established in SFAS 13: (1) transfer of ownership by the end of the lease term; (2) bargain purchase option and certainty that the option will be exercised; (3) the lease term is for the major part of the economic life of the asset; and (4) at the inception of the lease the present value of the minimum lease payments amounts to substantially all of the fair value of the leased asset. There are other examples that insist on the substance of the transaction.

2 Collins et al. (2012) document that the difference in these reporting regimes is not associated with differences in the propensity to lease, but the classification as either capital or operating differs significantly across firms applying IFRS or US GAAP; the latter are more likely to classify leases as operating rather than capital leases.


5 Their main arguments were that the model was complex, mainly due to the accounting for contingent rentals and purchase options. They claimed that these aspects do not meet the definition of a liability as established in the Conceptual Framework.

6 The main concerns referred to valuation of assets and liabilities, defining and establishing the lease term, the treatment of renewal options and contingent payments, and the voluntary nature of the simplification for short-term leases.

7 The main changes are the inclusion of the purchase option, as well as the renewal and termination options if the lessee has a significant economic incentive to exercise them, as well as some contingent payments, purchase options, and penalties for early termination (if they exist and if it seems reasonable that these events will happen).

8 Participants showed concerns about the dual model, and the presentation of lease expense separately or combined.

9 Both standards follow the measurement criteria established in ED 2013, and none requires recognising short-term leases (this is a lease for which it is reasonably certain that the term will not be more than 12 months); IFRS 16 also has an exemption for low-value assets.

10 Consequently, some people question: ‘Is this better than the current situation, in which the balance-sheet looks prettier but EBITDA more closely reflects the difference between the firm’s in comings and outgoings?’ (Economist 2013).

11 As Lipe (2001: 309) posits, ‘Whether the incentive to report a better performance measure is sufficient to reverse lessees’ past preference for operating lease accounting remains to be seen’. Obviously, the author does not refer to the new standard, but to the G4+1’s DP.

12 In the US, the mean ratio of Capital leases/Total debt was 0.118 in 1980, declining to 0.059 by 2007, while the average Operating leases/Total debt was 0.84 in 1980, rising to 7.116 by 2007 (Cornaggia et al. 2013: 349).

13 Prior to FIN 46, synthetic leases could be treated as capital leases for tax purposes, while retaining the operating lease treatment within the firm’s financial statements. FIN 46 required many lessee firms to capitalise these transactions.

14 This is 53% of the initial sample, which is consistent with the proportion of IFRS and US GAAP listed firms that use this type of financing (IASB 2016b).

15 When these observations are included in the sample, results remain consistent.

16 Results remain consistent if prices are measured four months after the end of the fiscal year, which is the Spanish deadline for publication of the financial statements (RDL 4/2015, 23 October). They are also consistent when prices are measured at fiscal year-end.

17 Observations without information about finance lease liabilities in the notes have been included in the regression with a value of zero, since we assume that they do not have this type of financing or it is not significant. Nevertheless, we have replicated the regression excluding them, and the results do not vary.

18 Similarly, Bratten et al. (2013) regress the cost of debt on lease liabilities, and report a positive coefficient on the operating lease liabilities, while the interaction term (that captures low reliability) shows a negative one.

References


International Accounting Standards Board (IASB) 2016b, Effects Analysis. IFRS 16 Leases, IASB, London.


Estimating the Off-balance Sheet Lease Liabilities

According to IAS 17, firms should disclose in the notes the following details about operating leases: future MLP for the following year, for years two to five, and for the years after the fifth year. To isolate the payments per year in the second package of MLP (years two to five), a geometric degression model is assumed in which the lease payments decline at a constant rate; the payment of any year (MLP\(_{t+1}\)) is obtained by multiplying the payment of the previous year (MLP\(_t\)) by the degression factor (df), as follows:

\[
MLP_{t+1} = MLP_t \times df
\]  

The degression factor is obtained from the following expression:

\[
MLP_{2-5} = \sum_{i=1}^{4} MLP_1 \times df^i
\]

Model (A2) produces decreasing lease payments, which is consistent with having several contracts with different lengths (but not only one contract). To take into account these aspects, and following Fülbier et al. (2008), we split the MLP into five contract baskets with different remaining lifetimes (one year up to five years or more) and obtain the present value of each basket. To separate them, we calculate the difference between the MLP in two consecutive years (MLP\(_t - MLP_{t+1}\)), which represents the contract that lapses each year. For the last period of annual payments, we divide the aggregated payment after year five into equal annual payments of the fifth basket (MLP\(_5\)). We approximate the number of years the payments would continue by dividing the total payment beyond year five by the payment of the fifth basket (MLP\(_5/MLP_5\)). This is consistent with the general assumption of constant lease payments per contract. We use the information given in the annual report to the greatest extent possible, for instance, when the firm discloses the disaggregated annual payments, we apply this information. For those firms that report the MLP in shorter periods, we group the payments in the standard periods, to implement the method uniformly.

Estimating the Unrecorded Lease Assets

While the asset value equals the value of the liability at inception of the lease, at any other time during the contract period it differs, and is a function of the present value of MLP at the lease inception (PV\(_{TL}\)) and the relation between the remaining life of the lease contract (RL) and the total life of the lease contract (TL):

\[
 Asset value = PV_{TL} \times \frac{RL}{TL} \]  

(A3)
Since the current lease liability is equal to the present value of the MLP over the remaining lifetime ($PV_{RL}$), the ratio of any lease asset to the corresponding lease liability ($PV_{RL}$) at any time during the contract period is determined by:

\[
\frac{RL}{TL} \times \frac{PV_{TL}}{PV_{RL}} \quad (A4)
\]

which is equal to:

\[
\frac{RL}{TL} \times \frac{1 - (1 + i)^{-TL}}{1 - (1 + i)^{-RL}} \quad (A5)
\]

Given that we do not have total MLP, we apply equation (A5) and use the estimated interest rate. As explained in the paper, we initially assume $RL/TL$ is 50% and in a sensitivity test consider 60% as well.