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This is an **author produced version** of a paper published in:

Journal of Management and Governance 18.3 (2014) 733-763

DOI: <https://doi.org/10.1007/s10997-012-9243-4>

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Proprietary costs, governance and the segment disclosure decision

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Abstract

Focusing on the Spanish setting, characterized by high ownership concentration and a regulatory framework that traditionally has given more priority to the avoidance of proprietary and competition costs related to disclosure than to promoting transparency, this paper aims to identify the main factors influencing the segment reporting decision. In particular, we aim to test whether the strength of concentrated ownership structures together with the persistence of the pre-IAS reporting philosophy offsets the role of independent directors. If this is the case, it would be in spite of the new IAS/IFRS reporting standards based on relevance and transparency, and would also run counter to the improvements in the Spanish governance framework which strengthens the presence of independent non-executive directors. The empirical evidence suggests that, under the new IAS/IFRS reporting philosophy, proprietary costs may have lost relevance due to the introduction of mandatory segment information requirements. In addition, within an institutional context of high ownership concentration, independent directors play a significant role in raising the level of reported information. The context of the new IFRS 8 offers opportunities to observe how governance and proprietary costs affect the new ‘management approach’ to segment classification.

Keywords: Segment reporting Agency theory Proprietary costs, Independent directors

1 Introduction

We evaluate the effectiveness of independent directors in promoting improved segment disclosure in a context of high ownership concentration and an ingrained financial reporting practice of avoidance of proprietary costs. The relevance of segment disclosure has been emphasized by regulators, analysts and international investors. In 1993, the Association for Investment Management and Research (AIMR) considered reporting by segment not just to be desirable but “essential for investment analysis”. Some years later, in 2001, the Financial Accounting Standard Board (FASB) included segment disclosure recommendations in their Steering Committee Report titled *Improving Business Reporting: Insights into Enhancing Voluntary Disclosures* in order to promote additional disclosures beyond the mandatory requirements. More recently, the Enhanced Business Reporting Consortium (EBRC) has recognised the importance of providing segment information to stakeholders by recommending an increase in the disclosure levels ¹.

Empirical evidence reveals that segment information is value relevant for capital markets². In fact, segment disclosure is now a requirement both in FASB and IASB standards and therefore, cannot be considered as voluntary information. However, managers have a certain degree of discretion on (a) the extent of segment reporting, that is, the type of information reported for each segment, and (b) the principal and secondary segment classifications. Prior research aims to understand the

¹ The Enhanced Business Reporting Consortium (EBRC) is a collaborative, market-driven initiative promoted by the AICPA that provides an opportunity for users and providers of capital to work together in the public interest to improve the quality of information provided to capital markets. The Consortium promotes greater transparency by developing an internationally recognized, voluntary framework for presentation and disclosure of value drivers, non-financial performance measures and qualitative information. More information can be found at: www.aicpa.org.

² Segment reporting affects share prices (Kinney 1971; Collins and Simons 1979; Tse 1989; Thomas 2000) and reduces errors in analysts’ predictions (Kinney 1971; Collins 1976; Emmanuel and Gray 1978; Baldwin 1984; Swaminathan 1991; Boatsman et al. 1993; Ahadiat 1993; Berger and Hann 2003).

determinants of these discretionary managerial decisions, i.e. the factors explaining the configuration of segment reporting information. Generally, the disclosure decision is viewed as the net result of a cost-benefit analysis, where the benefits (i.e. a reduction in agency costs) due to greater transparency, may offset the potential proprietary or competition costs associated with providing more information to current and potential competitors³. Verrecchia (1983), Dye (1986), Darrough and Stoughton (1990) and Wagenhofer (1990) provide theoretical support for the view that segment disclosure decisions are driven by the potential loss of competitiveness that a firm may suffer as a result of revealing key strategic information, and existing empirical research confirms that such competitive positioning is a key determinant of segment information disclosure (Gray 1981; Edwards and Smith 1996; Harris 1998; Botosan and Stanford 2005). However, segment disclosure can also result in significant benefits for the firm. In line with this argument, other theories also explain the segment disclosure decision; particularly, signalling and agency theory indicate that firms may benefit from such disclosure. These are considered as additional explanatory theories in prior research (see, e.g., Prencipe 2004) although their influence on segment disclosure has not been so widely tested.

We analyse the segment disclosure decision using a large set of Spanish firms. Spain provides a particularly interesting framework regarding this cost-benefit analysis for a number of reasons. On the one hand it represents an institutional setting where firms and national regulators have traditionally given priority to the avoidance of proprietary and competition costs in detriment to promoting information transparency. Within the pre-IAS national regulatory framework, firms were allowed to withhold information to protect their commercial and strategic interests; proprietary costs prevailed over other types of economic benefits associated with improved disclosure. However, from 2005 onwards, the adoption of International Accounting Standards (IAS/IFRS) has presented a new reporting philosophy based on relevance and transparency that Spanish companies have had to comply with.

³ Other documented benefits are related to an increase in the stock's liquidity in capital markets, correction of potential mis-valuations of the firm's stock or an increase in the interest of institutional investors (Healy and Palepu 2001).

On the other hand, Spain is characterized by the presence of high ownership concentration levels across most of its listed firms. In fact, a significant proportion of these are family-controlled (Faccio and Lang 2002), where block ownerships can be easily found. ‘Dominant’ shareholders are common, controlling on average 30 % of the share capital. This ownership structure (a) has been traditionally linked to less disclosure (Raffournier 1995), and also, (b) generates agency conflicts between minority and majority shareholders (Dyck and Zingales 2004), and therefore is of a different nature to those studied in most prior research. However, recent changes in the Spanish legal governance framework are intended to promote transparency and protect the interests of these minority shareholders, among other measures, by strengthening corporate boards with the presence of independent non-executive directors⁴. Nevertheless, the strength of the concentrated ownership structures across listed companies combined with persistence of the pre-IAS reporting philosophy may compromise the role of these independent directors. Thus, a further question of interest is the extent to which these new governance provisions can alter the traditional cost-benefit equilibrium in the segment disclosure decision. Hence, we study whether this change in reporting philosophy, coupled with the simultaneous development of the governance framework, has altered the relevance of the factors that affect the disclosure cost-benefit analysis. In particular, we evaluate the effectiveness of independent directors in promoting greater segment disclosures in a context of high ownership concentration and an ingrained financial reporting practice of proprietary cost avoidance. We contribute to the segment disclosure literature by presenting the first study to look at the impact of the governance structure and proprietary costs on segment disclosure across listed firms in settings characterised by proprietary cost avoidance and majority-minority agency conflicts. Previous research in this area focuses on the US context (Botosan and Stanford 2005; Berger and Hann 2003), and on international contexts prior to the compulsory adoption of IAS/IFRS (Nichols and Street 2002, 2007; Prather-Kinsey

⁴ The enactment of the Transparency Act in 2003 (26/2003) improved the requirements of transparency and information on corporate boards. Since its enactment, firms are required to file a corporate governance report, offering detailed information on their board’ structure. Boards must comply with the recommendations of the Corporate Governance Code that requires the presence of at least one-third of independent directors (Código Conthe 2006).

and Meek 2004; Prencipe 2004). We manually track segment reported information for a sample of 87 Spanish listed firms through the period 2005–2007, once the adoption of IAS/IFRS made segment information mandatory for all listed firms. The extent of segment reporting is measured in two ways: based on the number of segments (SEG_{it}) and the number of items reported in each segment ($ITEM_{it}$), observed for each firm i and in each year t . The results from the analysis support the idea that proprietary costs are still a determinant in segment disclosure. In fact, the results suggest that firms are more reluctant to increase the number of reported segments than the number of items per segment, suggesting that managers expect higher proprietary costs for greater segment disclosures compared to an increase in the number of items on which they report. However, the variation across the results for proprietary costs results may be interpreted as indicating a certain decrease in the relevance of proprietary costs to the segment disclosure decision, under the IAS/IFRS reporting framework. In addition, in an institutional context of high ownership concentration, where the results corroborate the tendency of majority shareholders to reduce the amount of reported information, independent directors play a significant role in countering this.

Studying segment disclosure and governance structures allows regulatory authorities either (a) to take decisions about whether to impose greater mandatory disclosures to prevent information being concealed or (b) to strengthen the governance mechanisms that promote information transparency. The context of the new reporting standard, IFRS 8, offers new opportunities to observe how governance and proprietary costs affect the new “through the eyes of management approach” to segment reporting classification (EC 2007). The new approach will potentially increase the usefulness and relevance of segment information.

However, reporting segment information based on the same way that managers receive the information creates a situation where transparency gives way to the fear of competition costs overcoming any potential capital market benefit. In this context, governance structures are a key factor to guarantee non-disclosure strategies.

The paper is structured as follows. Section 2 looks at the national and international regulatory framework for segment reporting. Section 3 discusses the theoretical framework and hypotheses. Sections 4 and 5

describe the research methodology and the results of the empirical analysis. Finally, Sect. 6 concludes.

The regulatory framework for segment disclosure

1.1 Segment disclosure in Spain: the pre-IAS period

The legal requirements on segment reporting in Spain were initially included in the 1989 reform of the Companies Act to comply with the requirements of the Fourth and Seventh European Union Directives ⁵. However, the Act contained a specific section (N8 100) that allowed firms to evade segment reporting information “when it could be harmful to the company”. Following the Companies Act principles, the 1990 National GAAP required companies to disclose sales by line of business and geographical market as long as the revealed information would not be strategically harmful to the company. If this was so, companies were required to explain the reason for withholding information.

An exception to this extended non-disclosure practice on segment reporting first arose in 1998, when the enactment of a specific law regulating electricity companies set out precise information requirements that included mandatory segment information ⁶. Similar requirements were extended some years later to construction and real estate firms, whilst other industries remained excluded from any specific requirement related to segment information. Through the 1980s and 1990s, the Spanish regulatory standards did not consider segment reporting as key value relevant information for creditor and investor decision-making. As Cabedo and Tirado (2002) report, in 2001, before the adoption of IASB/IFRS, even some of Spain’s most prominent companies (i.e. in the IBEX-35 stock market index) did not report any segment information with their consolidated accounts ⁷. However, the EU Commission Communication *EU Financial Reporting Strategy: the way forward*

⁵ The Fourth and Seventh Directives stated that companies have to disclose their sales by “category of activities” and “geographical markets” as part of the Notes to the Financial Statements.

⁶ The 437/1998 Royal Decree.

⁷ The IBEX-35 is the main index of the Madrid Stock Exchange, including the 35 most liquid stocks.

(COM/2000/359) required the national standards-setters across EU Member States to initiate changes which would lead to the adoption of a new accounting regime (IAS/IFRS) in the EU. In Spain, an Experts' Commission Working Group on Financial Reporting was created in 2002 to assess the required institutional changes that the national accounting regulation would have to deal with. These modifications would not only allow for the adoption of IAS/IFRS for listed companies but would also steer national accounting regulation for non-listed firms towards this new reporting philosophy.

Regarding segment disclosure, the Experts' Commission maintained that "it will not be possible to achieve a higher level of information quality if diversified companies do not pay attention to the segment disclosure as the best way to supply and analyse financial information" (ICAC 2002). This assertion was indeed a turning point in a new reporting philosophy. The current National GAAP require firms to disclose the "sales distribution, by line of business, as well as geographical markets, when geographical markets of businesses categories differ substantially from each other"⁸. The possibility of withholding segment information now only applies to small firms⁹. However, while the current National GAAP still allow companies broad discretion in determining whether segments differ *substantially*, their coexistence with IAS/IFRS effectively requires listed firms to define their reporting segments based on the IAS/IFRS standard in force¹⁰.

1.2 Segment disclosure under US GAAP and IAS/IFRS

In the US context, segment information became mandatory with the issue of SFAS 14 in 1976. This standard required firms to disclose segment information both by line of business (LOB) and by geographical area,

⁸ The 2007 National GAAP apply to all non-listed companies and to the individual accounts of listed companies. Listed companies in Spain must adhere to IAS/IFRS in the preparation of their consolidated annual financial statements.

⁹ Small firms are considered as those reporting sales under 11.4 million Euros, and an asset figure lower than 22.8 million Euros and less than 250 employees.

¹⁰ The empirical analysis in this paper is based on IAS 14, which was superseded by IFRS 8 from 2009 Financial Reports onwards.

with no specific link to the internal organization of the company. An exploratory study in 1993 revealed that the SFAS 14 requirements led to some of the largest companies in the USA reporting just one segment, hence withholding value relevant information (Troberg et al. 2010)¹¹. As the AIMR (1993) position paper concludes, SFAS 14 had failed in this respect to meet the requirements of analysts and other users of the information.

In March 1993, the Canadian Institute of Chartered Accountants (CICA) and the FASB started to work on a joint project to improve disaggregated disclosures. Both regulatory bodies considered that SFAS 14 was failing to comply with the needs of capital markets and particularly those of financial analysts, who, as mentioned above, were demanding more detailed information¹². The original SFAS 14 was criticised not only for allowing discretion in segment definition and in the degree of disclosure, but also for the absence of consistency and coherence between segments and the firm's internal organization (Emmanuel and Gray 1978; Gray et al. 1984). SFAS 14 was finally superseded by SFAS 131 in 1997. This new standard increases segment disaggregation, defining segments based on the firm's internal decision-making structure. The adoption of SFAS 131 was motivated by the belief that segment data has large benefits for capital markets (Berger and Hann 2007). In fact, its adoption has been valued very positively in terms of the transparency and coherence of financial information. Nichols et al. (2000) and Hermann and Thomas (2000) found that the application of SFAS 131 had resulted in many companies increasing the number of segments disclosed and achieving a greater consistency with the information contained in the rest of the financial report. One of the possible explanations for managers withholding information under the previous standard (SFAS 14) could be the intention to protect certain segments in competitive sectors (Harris

¹¹ A similar analysis was carried out by the IASC in 1994, obtaining similar results for IAS 14.

¹² The Report of the AICPA Special Committee on Financial Reporting, *Improving Business Reporting—A Customer Focus* (1994) refers to the need for the following improvements to the standard: (a) more information about segments, (b) segmentation based on the internal management organization, (c) consistency of the information with other parts of the annual report and finally, (d) more segment disaggregation for some companies.

1998; Botosan and Stanford 2005; Berger and Hann 2007), and not as an attempt to conceal poor results. Another positive effect of the new standard on segment disclosure comes from the direct use of that information. Berger and Hann (2003) showed how SFAS 131 brought about a decrease in prediction errors made by financial analysts.

Changes in IASB segment reporting requirements have followed the revisions to FASB postulates. IAS 14, which was superseded in 2006 by IFRS 8, was initially issued in 1981 and revised in 1997, after SFAS 131 was issued. The first IAS 14 (1981) was based on the SFAS 14 'industry' approach and required firms to report segment information for industry and geographical segments. However, the 1981 standard was criticized for permitting alternative interpretations of 'industry' segment disaggregation, as well as a lack of prescriptive guidance, clarity and the use of ill-defined language (Nichols and Street 2007; Prather-Kinsey and Meek 2004). The 1997 revision of IAS 14 addressed some of the criticisms by increasing information requirements and by suggesting the use of internal organization groupings as a basis for establishing reportable segments.

The revision incorporated the SFAS 131 requirement to use the 'internal management reporting system' when identifying segments, i.e. the 'management approach'. In this respect, IAS 14 Revised adopts a two-tier approach requiring segment information to be reported for business and geographical segments based on the risk and rewards approach, where the primary segments identified under the management approach should exhibit similar risk or reward characteristics. In addition, if the management structure should make it difficult to choose between business or geographical segments as the primary reporting criterion, IAS 14 (1997) dictated that line of business should be the primary format (Nichols and Street 2002) and that considerably less information need be disclosed for the secondary segment.

In spite of the revision of many aspects of IAS 14 in 1997 and the introduction of the 'management approach' concept, the standard did not completely satisfy the information requirements of users of financial statements (Nichols and Street 2002; Prather-Kinsey and Meek 2004) nor was it in line with the US segment reporting standard SFAS 131, and therefore did not fit well with the FASB and IASB convergence plans. In 2002, the IASB Board decided to add segment reporting to the

IASB-FASB short-term convergence project. The current IFRS 8 can be described as a more flexible and detailed standard based on the core principle that an entity “should disclose information to enable users of financial statements to evaluate the nature and financial effects of the types of business activities in which the firm engages and the economic environments in which it operates” (IFRS 8 par.1, 2006). The standard aims to improve the reported financial information on operating segments by requiring the identification of operating segments based on the firm’s internal reporting system and, in particular, on the internal reports about components of the entity that are regularly reported to the “chief operating decision-maker” (IFRS 8 par. IN11, 2006). The new standard defines operating segments in a similar way to SFAS 131, based on the firm’s “internal financial reporting to key management personnel”.

Evidence on the use of the ‘management approach’ since the issue of SFAS 131 reveals that the reported segment information is proving more useful, particularly the increase in the number of reported segments and the enhanced consistency with the management discussion and analysis of the annual report (Troberg et al. 2010; Berger and Hann 2003; Herrmann and Thomas 2000). This approach is expected to reduce the cost of preparing and auditing financial information, as defining the segments will entail no extra costs. However, it has been widely criticized not only for producing information that cannot be compared across industries, but also—seen through management eyes—for the harm that can be done to a company by disclosing information which would be available to the competition. The IASB has answered the criticisms related to the application of the ‘management approach’ in IFRS 8 in terms of costs and benefits, concluding that the new statement will result in greater transparency and lower costs in preparing segment information. The Board argues that competitors have alternative sources of information and, therefore, firms are no more vulnerable than before. A different argument comes from Paul and Largay (2005) who consider that concealing information harms “the enterprise by producing uncertainty in capital markets creating the suspicion that management is hiding information and therefore, increasing the cost of capital”.

Whether the adoption of IFRS 8 increases or significantly changes the reported segments will depend primarily on the firm’s internal reporting practices, the internal organization and the potential costs and benefits of

disclosure perceived by the company. As previously stated, evidence in the US reveals a significant improvement in segment reporting with the adoption of SFAS 131 (Paul and Largay 2005). However, institutional differences across countries in the EU may lead to variations in the way that companies adopt the standard, which could determine the kind of changes made in their own segment reporting.

Factors such as the firm's corporate governance structure or how the stock market operates where the firm is listed, may affect the way in which IFRS 8 is adopted. In countries like Spain, where segment reporting has not been traditionally emphasized and the argument of proprietary costs still prevails, firms may be unwilling to make many more segment reporting disclosures under IFRS 8 than they did with the previous IAS 14. However, we cannot corroborate this argument, as it is not within the scope of this article.

2 Segment disclosure, agency theory and proprietary costs: hypotheses development

2.1 Proprietary costs and the disclosure decision

Theoretically, in the absence of disclosure costs or uncertainty, firms should follow a full disclosure policy (Verrecchia 2001). However, in spite of the positive effects of disclosure, empirical research reveals the impact of multiple cross-sectional factors on the cost-benefit analysis of the disclosure decision. As Healy and Palepu (2001) explain, managers face a trade-off between disclosing information that may help capital markets to assess the value of the firm correctly, and withholding information to avoid potential harm to the firm's competitive position (the so-called 'proprietary costs').

Whilst Prencipe (2004)¹³ suggests that the impact of proprietary costs may have been considered as marginal in some prior research, theory and evidence reveal nevertheless how segment disclosure can be particularly sensitive to the potential losses that the firm may suffer for providing value relevant and strategic information to its competitors,

¹³ Prencipe (2004) points to many other firm-specific or institutional characteristics that have been claimed to affect the cost-benefit equilibrium associated with disclosure policy, including company size, listing status, industry sector, the presence in international markets, managers' compensation plans, ownership structure and litigation costs.

suppliers and regulators. Analytical research in Hayes and Lundholm (1996) shows that, given competition and more reporting flexibility, managers will protect excess profits through segment aggregation. As Harris (1998) indicates, empirical results are consistent with this idea and show that less competitive industries are more likely to conceal segment information in order to protect their competitive position. The segment disclosure decision is very much affected by the degree of current and potential industry competition.

The impact of proprietary costs on the segment disclosure decision has been more widely studied in the US regulatory context. Of particular interest was the change from SFAS 14 to SFAS 131, which offered an opportunity to study the consequences of more segment disclosures and the determinants of non-reporting strategies. Ettredge et al. (2002), Botosan and Stanford (2005) and Berger and Hann (2003 and 2007) are among these studies. Ettredge et al. (2002) observe that companies lobbying the SFAS 131¹⁴ exposure draft on segment information suffered an increase in competitive harm, due to the new SFAS 131 segment reporting requirements. They record a negative stock market reaction in the performance of firms in the lobbying group, that is, on firms that previously concealed segment information under the SFAS 14 regulatory framework, findings that are consistent with the idea that the SFAS 131 resulted in additional costs for firms faced with new disclosure requirements. Botosan and Stanford (2005) and Berger and Hann (2003) observe an increase in the number of reported segments with the adoption of SFAS 131. Botosan and Stanford (2005) look at the changes in the reported information for a group of firms that reported as a single segment under SFAS 14. They observe that the managers' attitude to concealing segment information is explained by the intention to protect profits in less competitive industries and not to hide poor performance. However, Berger and Hann's (2007) results find additional evidence revealing that industry aggregation strategies depend on both proprietary costs and agency costs, (i.e. greater monitoring due to poor performance),

¹⁴ Companies lobbying the SFAS 131 exposure draft were those significantly affected by the new requirements on segment reporting. The new standards resulted in the loss of the reporting flexibility allowed under the previous SFAS 14. Companies' primary concern was that costs would be imposed by competitors. The new more informative reporting requirements would allow competitors to identify competitive opportunities in the most profitable business segment (Ettredge et al. 2002).

depending on the motive that dominates the managerial decision. In a non-US GAAP context, it is worth considering the research that looks at the impact of the adoption of the 'management approach' introduced in the 1997 IAS 14 revision¹⁵. Nichols and Street (2002) and Prather-Kinsey and Meek (2004) look at the reporting differences and disclosure patterns before and after the issuance of IAS 14R on a sample of international companies voluntarily adopting IFRS. Both empirical studies offer similar conclusions: IAS 14R resulted in more segment disclosures although non-compliance was still present in certain firms. In line with the US evidence for SFAS 14, Nichols and Street (2007) corroborate a negative association between industry competition and segment disclosure in the context of IAS 14 R (1997).

Additional evidence in Europe also corroborates the relevance of competition costs on the segment disclosure decision. Based on a survey in the UK, Edwards and Smith (1996) corroborate the costs of potential competitive disadvantages as an important non-disclosure determinant of segmental information before and after the issuance of SSAP 25. Leuz (1999) provides evidence that voluntary segment disclosure across German firms is more associated with proprietary cost proxies than other voluntary and less competitively sensitive disclosures, such as the cash flow statement.

Together with proprietary and competitive costs, the preparation and the diffusion of the information leads itself to additional expenses that affect the disclosing decision. As Prencipe (2004) explains, preparation costs may significantly affect the disclosing decision when reported segments do not correspond with the internal organization of the firm, that is,

¹⁵ Leung and Horwitz (2004) and Wan-Hussin (2009) extend the analysis into an Asiatic context. However, these authors do not place emphasis on proprietary costs, but on the impact of governance characteristics (i.e. director ownership, independent directors, family firms). McKinnon and Dalimunthe (1993) in Australia and Bradbury (1992) in New Zealand look at the firm-specific determinants of voluntary segment disclosure in line with the general voluntary disclosure literature. Bradbury (1992) only finds a positive association between firm size and leverage. McKinnon and Dalimunthe (1993) in Australia observe that, together with the impact of the size variable, others related to the agency relationship within the corporation also affect the disclosure decision. The ownership structure and the percentage of minority interests are singled out as positively affecting the level of segment disclosure.

internal divisions or legally identifiable companies¹⁶. In fact, Prencipe's (2004) empirical results in Italy confirm that, when segments are identified with legal subgroups of companies, disclosing decisions are less affected by the costs of preparing, disseminating and auditing information, and therefore, segment disclosure increases.

However, as Berger and Hann (2007) explain, proprietary and preparation costs may be offset under certain circumstances. When the benefits of disclosing are higher than the costs, the tendency towards disclosure will prevail. The balance between the capital market benefits of higher transparency and proprietary costs will depend on other firm-specific factors, like the degree of competition in the sector where the firm operates (Harris 1998).

Spain provides an interesting framework when looking at the cost-benefit analysis that companies may assess on taking their disclosure decisions. The past tendency was to withhold segment information in order to protect the firm's interests and is consistent with the prevalence of the proprietary costs theory over any potential benefits associated with greater disclosures. For many years, both firms and national regulators gave priority to avoiding proprietary and competition costs, in spite of the positive effects of increasing disclosures. However, the adoption of IAS for consolidated financial information has obliged companies to become more transparent, converting segment disclosure into a key pillar of this new policy.

Under this new reporting regime, accounting regulation and governance mechanisms have moved in parallel in order to improve financial information quality and transparency.

However, the traditional reporting philosophy embedded in the pre-IFRS regulatory framework suggests that proprietary costs still weigh in the disclosure decision.

The impact of proprietary costs on the segment disclosure decision may be assessed using the following proxy variables: number of competitors within the main industry where the firm operates, and the

¹⁶ This is the argument that the IASB uses in favor of the new management approach on segment disclosure reporting under IFRS 8.

industry-adjusted profitability of the firm. Assessing its competitive position allows an understanding of the potential proprietary costs that firms face when reporting segment information. Companies operating in less competitive industries are more likely to obtain abnormal earnings, and thus, may face higher proprietary costs associated with more disclosures (Harris 1998). Consistent with this idea, Leuz (1999) argues that, as the threat of entry increases within an industry-sector, firms are less likely to make voluntary disclosures to capital markets. Hence, we expect that firms operating in sectors with low competition will face incentives to conceal information to avoid the entrance of potential rivals. Similarly, those firms with positive abnormal levels of profitability will be discouraged from increasing segment disclosures in order to avoid the entrance of new competitors.

Therefore, based on previous evidence and theory, we hypothesize a negative relationship between proprietary costs and segment disclosure.

H1 *Ceteris paribus*, companies operating in less competitive industries, disclose lower levels of segment information

H2 *Ceteris paribus*, companies with positive industry-adjusted profitability, disclose lower levels of segment information

2.2 The impact of the agency relationship on disclosure

The misalignment of interests between the agent (manager) and the principal (shareholder) postulated by Agency Theory creates incentives for information asymmetries that may potentially permit a transfer of wealth from owners to managers. Under these circumstances, control mechanisms must be in place to realign managers' and shareholders' interests (Jensen and Meckling 1976).

Financial information is one of these mechanisms, playing a key role in reducing information asymmetries and the costs associated with the agency relationship. Firms with higher ex-ante agency costs are expected to promote transparency in order to reduce the monitoring and bonding costs required in a context of high information asymmetry. However, the characteristics of the ownership structure may constrain this tendency.

Ownership structure has been extensively documented as a key

determinant of disclosure (Gelb 2000), which is expected to increase with higher levels of ownership diffusion (Raffournier 1995), where minority shareholders will require more information. In closely-held companies, the main agency conflict appears between majority and minority shareholders (Dyck and Zingales 2004) and results in firms that tend to maintain low levels of disclosure¹⁷ unless capital markets and the regulatory framework create incentives to increase the level of disclosed information (Salter 1998). The negative impact of ownership concentration on disclosure may be offset with a good corporate governance system. The board of directors is one of the most important elements in controlling the performance of companies in the interest of minority shareholders (Fama and Jensen 1983), reducing the costs of the agency relation that arise in open corporations.

There is extensive empirical research that evaluates the role of independent directors in promoting additional disclosures. As Lim et al. (2007) explain, one outcome of effective governance is greater accountability, and, implicitly, more disclosure of information. A large body of empirical analysis corroborate this assertion, documenting the decisive role of independent directors in promoting transparency through higher voluntary disclosure (Cheng and Courtenay 2006; Patelli and Prencipe 2007; Lim et al. 2007 and Donnelly and Mulcahy 2008). With regard to segment disclosure, Leung and Horwitz (2004) and, more recently, Wan- Hussin (2009) look at the impact of independent directors in samples of Hong Kong and Malaysian companies, respectively. Leung and Horwitz (2004) find a positive relationship between voluntary segment disclosure and the presence of non-executive directors when director ownership is low. Conversely, Wan-

¹⁷ However, majority shareholders may also have an interest in increasing disclosures. When strong legal mechanisms are in place, these firms will try to improve their reputation as highly transparent firms (Patelli and Prencipe 2007; Lim et al. 2007). In addition, majority shareholders are more involved in the daily operations of the firm and therefore, have access to more value relevant information for decision-making. For this reason, a strong presence of majority shareholders can also be related to higher levels of disclosure. However, most of the empirical evidence reports a negative relationship between ownership concentration and disclosure (Broberg et al. 2010; Patelli and Prencipe 2007; Cheng and Courtenay 2006). In the segment disclosure literature McKinnon and Dalimunthe (1993) and Leuz (1999) reveal the positive relationship between ownership diffusion and segment disclosure, while Patelli and Prencipe (2007) found no evidence in the Italian capital market.

Hussin (2009) does not find evidence that the presence of independent directors has a positive effect on segment disclosure in Malaysian firms. As Leung and Horwitz (2004) explain, the role of independent directors may be compromised in a context of high ownership concentration. Under these circumstances, the legal framework plays a significant role creating a 'strong governance environment' that forces majority shareholders to appoint independent directors who perform their monitoring and information role efficiently, strengthening the complementarities between governance and information.

However, even when the legal framework promotes transparency and truly independent directors are appointed, higher quality segment disclosures are not guaranteed if the expected proprietary costs of disclosure outweigh their economic benefits. As previously explained, Spain is characterised not only by highly concentrated ownership structures but also a strong tendency towards the avoidance of potential proprietary and strategic costs in detriment of transparency. In this context, the role of independent directors in promoting transparency may be significantly compromised.

Here, we assess the impact of ownership structure and the presence of independent directors on the segment disclosure decision. Based on theory and on the ownership structure characteristics of Spanish firms, we hypothesize a negative relationship between segment disclosure and ownership concentration.

H3 Ceteris paribus, companies with higher ownership concentration disclose less segment information

Consistent with previous evidence on disclosure decisions in the Spanish context (Gisbert and Navallas 2011), independent directors positively impact on the degree of voluntary information. Therefore, we expect a similarly positive relationship between the presence of independent directors and segment disclosure. We formulate the following hypothesis.

H4 Ceteris paribus, companies with a higher presence of independent directors are more likely to disclose segment information

Together with the agency and proprietary cost variables, other important drivers of segment disclosure are expected to be size, leverage, profitability and industry diversification.

We expect large companies to disclose more segment information. According to previous studies, including Bradbury (1992), McKinnon and Dalimunthe (1993), Hermann and Thomas (1996) and Prencipe (2004), larger firms incur lower preparation costs when producing segment information and therefore are expected to report more information. However, size can also be understood as a proxy for proprietary costs as larger companies may be more sensitive to the competitive disadvantage of disclosing *sensitive* information. Additionally, within the framework of Positive Accounting Theory, where size is treated as a proxy for political costs, larger firms potentially may be affected by such costs if disclosure increases their visibility. In spite of the possible negative impact of firm size on the disclosure decision, most of the previous empirical evidence documents a positive relationship. Higher levels of leverage imply more agency costs (Jensen and Meckling 1976).

Highly levered firms are expected to disclose more information in order to improve the communication and informative transparency with their creditors (Meek et al. 1995). However, empirical evidence is not always consistent with this positive relationship; for example, Prencipe (2004) found that it was positive between leverage and segment disclosure in Italy, while Leuz (1999) found that it was not significant in Germany. We expect a positive relationship, as the presence of banks and creditors in Spain is stronger and the effort to fulfil the banking disclosure requirements is likely to bring about an increase in general information levels. Empirical evidence on the impact of profitability on voluntary disclosure is inconclusive. It can be considered a proxy for proprietary costs and, therefore, more profitable firms may be more sensitive to revealing the results of their most profitable segments. However, other authors such as Meek et al. (1995) argue that highly profitable firms tend to disclose more information in order to reveal their superior performance. A more detailed analysis on the impact of profitability on disclosure is given in Lang and Lundholm (1993), who suggest that this relationship is only positive for companies with high information asymmetries between managers and shareholders.

Finally, we control for the number of industries where the firm operates. That is, the degree of industry diversification, when higher, implies the need to report on more operating segments to fulfil the IAS 14

requirements.

(Insert Table 1 around here)

3 Research design

3.1 The sample

Our final sample consists of 87 Spanish companies (253 observations) listed on the Madrid Stock Exchange in the period 2005–2007. Table 1 shows the final sample selection procedure.

Segment disclosure is measured in two ways. N_SEG measures the total number of segments reported by each firm in the notes to its financial statements. N_SEG includes all segments reported, both primary and secondary. N_ITEM measures the total number of balance sheet and profit and loss account items reported by each firm in the primary and secondary segments. Our disclosure measures are unweighted (previous studies found similar results for both weighted and unweighted indexes see Prencipe 2004).

Segment disclosure data has been hand-collected from the Segment Reporting Notes in the 2005, 2006 and 2007 Financial Statements. The data collection process identified the primary and secondary reporting criteria, the number of segments identified in the primary and secondary reports and, finally, the number of balance sheet (BS onwards) and profit and loss (P&L onwards) line items reported in each of the primary and secondary segments. The information allows us to compute the two independent variables N_SEG and N_ITEM.

Governance variables relating to Ownership and Board structure for each firm have been collected manually from the 2005, 2006 and 2007 corporate governance reports that listed companies must file with the Spanish Capital Market Securities and Exchange Commission (CNMV—*Comisión Nacional del Mercado de Valores*). Finally, control variables were collected from the Amadeus Database.

3.2 Methodology

For the empirical analysis we estimate the following model:

$$\text{SEG}_{it}(\text{ITEM}_{it}) = \alpha_0 + \beta_1 \text{CCAP}_{it} + \beta_2 \%_ \text{IND}_{it} + \beta_3 \text{N_COMPT}_{it} + \beta_4 \text{N_SIC}_{it} + \\ + \beta_5 \text{DifROE}_{it} + \beta_6 \text{SIZE}_{it} + \beta_7 \text{LEV}_{it} + \beta_8 \text{ROA}_{it} + \varepsilon_{it}$$

where N_SEG_{it} and N_ITEM_{it} are, alternatively, the number of segments and the number of financial statement items reported by firm i in year t . The vector of governance variables includes the CCAP and $\%_ \text{IND}$ variables: CCAP is a dummy variable that measures the degree of ownership concentration, which takes the value one when the firm's main shareholders own more than the average capital concentration in the sample; $\%_ \text{IND}$ is the proportion of independent directors on the board.

The vector of proprietary cost variables includes: N_COMPT , N_SIC and DifROE . N_COMPT is the number of competitors within the firm's main industry sector, according to the primary NACE industrial code reported in the Amadeus database. The number of competitors for each NACE industrial code has been collected from the Spanish Central Bank (*Banco de España*) database on sector rates for non-financial corporations. Competitors are identified as such if reported sales are over 50 M€¹⁸. The degree of industry diversification (N_SIC) is measured as the number of SIC industry codes where the firm operates. DifROE is a dummy variable that takes value 1 if the firm's industry-adjusted ROE (Return on Equity) is positive and the value 0 otherwise. The industry ROE for 2005, 2006 and 2007 has also been collected from the Spanish Central Bank database on sector rates for non-financial corporations and is based not only on the firm's main activity NACE classification but also on the firm's size. That is to say, industry ROE for each NACE sector has been collected for firms reporting over 50 M€ sales, and each firm's ROE has been compared with the Industry ROE in order to compute the DifROE variable. Finally, with respect to firm size, leverage and operating profitability, SIZE is measured as the natural logarithm of total assets, LEV is the total debt to equity ratio and ROA is net income over total assets.

4 Empirical results

4.1 Dependent variables

¹⁸ All the sample firms are above this threshold.

Table 2 reports the information on the selected segment reporting criteria across the sample firms. Consistent with previous empirical studies (Nichols and Street 2002; Prather-Kinsey and Meek 2004), the data indicate that most of the sample firms (87.3 %) choose their line of business (i.e. the different products or services offered by the company) as the primary segment criterion. A much lower number of firms in the sample adopt the geographical criterion for their primary reporting. Geographical segmentation is more often chosen as the secondary criterion, which is the case for most of the companies in the sample.

(Insert Table 2 around here)

Table 3 provides descriptive statistics for the N_SEG and N_ITEM variables in the primary and secondary categories. Sample firms include an average of 4 segments (3 segments) in their primary (secondary) reporting format, with a maximum of 10 (13) segments. These results are in line with those reported by Nichols and Street (2007) for a sample of international firms applying IAS 14. Furthermore, sample firms report an average number of 6 BS and 8 P&L items. However, the mean and median for secondary segment reporting indicate a significantly lower number of BS and P&L reported items.

The descriptive analysis for each year during the time period analyzed indicates stability across the number of reported segments and a moderate increase in the number of items reported in the primary segment. These results suggest that, since the introduction of IAS/IFRS in 2005, Spanish companies have increased the amount of reported segment information. This is particularly noticeable in 2006 compared to the previous year (Table 4).

4.2 Independent variables

Table 5 provides descriptive statistics for the explanatory variables. The average ownership concentration in the sample is 55.5 %, with a maximum concentration value of 99.3 %. Apart from this, Spanish firms are also controlled by a small number of shareholders. The mean number of majority shareholders is 4 and nearly 57 % of the sample firms are considered as highly concentrated (CCAP = 1).

The characteristics of the ownership structure are consistent with the

higher presence of gray directors on the board, that is, directors who are not employed by the firm but may have some sort of affiliation that can cause a conflict of interest. Corporate boards are composed of more gray directors (42 %) than independent directors (32 %). In addition, in 75 % of the companies in the sample, the Chairman and the CEO responsibilities are taken on by the same person.

(Insert Table 3 around here)

(Insert Table 4 around here)

The mean number of current competitors for each firm is 17, with a maximum number of 117 companies within the same 3 digit CNAE industry sector (N_COMPT) and a minimum of 1. This indicates significant heterogeneity in industry competition, with some firms operating in highly competitive sectors, and others in quasi-monopolistic environments with very low competitive pressure. As the number of competitors grows, the risk of entrance of new rivals lowers and therefore, managerial tendency to conceal information also decreases.

The presence of potential proprietary costs across sample firms can be observed not only through N_COMPT but also through an additional proprietary cost proxy, where DifROE is positive. As previously argued, companies with positive abnormal levels of profitability will be discouraged from increasing segment disclosures in order to avoid the entrance of new competitors. 54 % of the sample (40 companies) are in this situation, reporting a positive industry-adjusted Return on Equity (DifROE > 0).

The results for SIZE, ROA, LEV and N_SIC, the firm size, operating profitability, leverage and industry diversification variables, reveal a wide cross-sectional variation for the sample firms.

(Insert Table 5 around here)

Table 6 reports the results of the *T* Test and Wilcoxon Mann–Whitney statistical tests. These allow us to corroborate the existence of differences in the distribution across two sub-samples, with respect in this case to each of the dependent variables where the sample firms are divided into two groups based on the mean value of the continuous

explanatory variables (%_IND, %_GRAY, N_COMPT, SIZE, LEV, ROA and N_SIC) and the values 1/0 for the two discrete explanatory variables CCAP and DifROE. The results for the proprietary cost variables indicate that companies with higher ex-ante proprietary costs disclose a lower number of segments. The analysis of the DifROE discrete variable reveals that companies with positive industry-adjusted profitability report a lower number of segments (6.59 vs. 7.73). These results are consistent with H2 and the proprietary costs theory, which states that firms with abnormal levels of profitability will be discouraged from increasing segment disclosures in order to avoid the entrance of new competitors.

(Insert Table 6 around here)

Similarly, the analysis of the N_COMPT variable is consistent with H1 and reinforces the idea that firms in less competitive industries have incentives to report a lower number of segments (6.66 vs. 7.29), in order to conceal to potential competitors their sources of abnormal profitability. Results for the ROA control variable are consistent with the results for the proprietary cost variables.

Consistent with H4, the results for the governance variables indicate that firms with a higher percentage of independent directors on their corporate boards report a significantly higher number of segments. Regarding the ownership concentration variable (CCAP), the results suggest that managers in highly concentrated firms do not seem to report a significantly lower number of segments compared to managers operating under diversified ownership.

The relationship between the N_SEG variable and the other independent variables is positive for N_SIC, SIZE and LEV. Firstly, more industry diversification is associated with a significantly higher number of reported segments in the financial statements, results that are consistent with the fact that highly diversified firms need to report more operating segments based on IAS 14 requirements. Also, larger and more highly leveraged firms report a significantly higher number of segments compared to small and low leverage ones. These results are consistent with the argument that larger firms have lower preparation costs and more information requirements while those that are highly leveraged need to disclose more information in order to improve transparency with

their creditors (Meek et al. 1995).

The associations between the independent variables and the number of reported segments can be extended to N_ITEM, the number of reported financial statement items. With regard to the determinants of proprietary costs and governance, the observed relationships are consistent with the expected results. However, the statistical analysis is only significant for the N_COMPT variable.

The Pearson and Spearman statistical correlations between the independent variables and the dependent variables (N_SEG and N_ITEM) are reported in Table 7. The correlation results are consistent with the descriptive univariate analysis.

The number of segments disclosed (N_SEG) is positively correlated with the proportion of independent directors (%_IND), industry diversification (N_SIC), log total assets (SIZE) and the ratio of total debt to equity (LEV), and negatively correlated with abnormal Return on equity (DifROE).

The number of financial statement items included in the segment report (N_ITEM) is positively correlated with ownership concentration (CCAP), industry diversification (N_SIC), the number of competitors (N_COMPT) and firm size. In addition, a significant negative Spearman correlation appears between N_ITEM and operating profitability (ROA).

As expected, ownership concentration (CCAP) is significantly correlated with the two board composition variables %_IND and %_GRAY¹⁹. In fact, the correlation between CCAP and %_IND is negative, and hence it may be inferred that there are higher levels of independent directors in less concentrated ownership structures.

(Insert Table 7 around here)

With respect to the proprietary cost variables, the correlation between DifROE and N_COMPT is negative, suggesting that these proxies may capture different aspects of proprietary costs. Firms with abnormal

¹⁹ The latter is the percentage of affiliated directors on the Board but is not considered as an explanatory variable in the empirical model.

levels of industry-adjusted profitability are more likely to be operating in industries with fewer competitors, and therefore they will be tempted to mask over-performance to reduce the interest of potential competitors in the markets where they operate. Hence, abnormal profitability should indeed be negatively correlated with the presence of a high number of competitors within the main industry sector.

Significant correlation coefficients between other explanatory variables suggest potential multicollinearity problems. However, as reported in Table 9, the Variance Inflation Factor is not higher than 2 for any of the variables in the different specifications of the model.

4.3 Regression results

The econometric analysis allows us to test the four hypotheses simultaneously. Tables 8 and 9 summarize the results for the two dependent variables, Table 8 reporting the results for N_SEG and Table 9 for N_ITEM. Following Petersen (2009), in order to avoid potential spurious inferences due to the use of panel data, we correct for potential cross-section and time-series dependence. Tables 8 and 9 report both the OLS regression estimates and the firm-fixed effects regression²⁰.

With regard to both the identification of segments (Table 8) and the inclusion of financial statement items (Table 9), in each table Panel A reports on all disclosures in the primary and secondary reports, Panel B only on disclosures in the primary report, and Panel C only on disclosures in the secondary report.

If we look at the determinants of N_SEG, the results for the proprietary cost variable DifROE reinforce the view that firms reporting positive industry-adjusted returns conceal segment information in order to avoid providing value relevant information to current and potential competitors.

²⁰ Using a panel data set, the common assumption of independence in regression errors is generally violated. This residual dependence across firms or time can result in biased standard error test statistics and misspecified significance statistics in OLS regressions. As Petersen (2009) explains, in panel data analysis, when residuals are correlated, the OLS standard errors are underestimated leading to confidence intervals that are too small. Here, we only report the results of the OLS and the firm-fixed effects regressions. The results of the time-fixed effects estimates are similar to those of the OLS, so the results are not reported. However, the fixed effects approach has certain caveats and limitations. On one hand, it does not produce estimates for the effects of variables that do not change over time (i.e. N-SIC). Apart from this, its estimates may be imprecise for explanatory variables that vary greatly across individuals but have little variation over time for each individual. Controlling for

fixed effects when explanatory variables have little within-firm variation leads to substantially larger standard errors, higher p-values and wider confidence intervals, that is, non-significant results. The best situation for a fixed effects analysis is when all of the variation on a time-varying predictor is within-firms (Allison 2006). The ANOVA analysis allows us to know the within-firm variation for the different explanatory variables in our model. For these, most of the variation is between firms, and within-firm variation is low: DifROE = 36 %, %_IND = 27 %, CCAP = 21 %, N_COMPT = 10 %. Results from the fixed effect analysis should be interpreted with caution.

(Insert table 8 around here)

The negative coefficient remains significant across Panels for the OLS, but not for the firm-fixed effects model. However, as Allison (2006) explains, the fixed effects estimates may be sometimes imprecise for explanatory variables that vary greatly across firms but little over time for each firm imprecise for explanatory variables that vary greatly across firms but little over time for each firm. The ANOVA analysis allows us to know the within-firm variation for the different explanatory variables. Within-firm variation for the DifROE variable is 36 %. Most of the variation in this variable is therefore between firms, suggesting that the results from the fixed effects model should be interpreted cautiously. We, likewise, confirm the validity of H1 with caution.

For the N_COMPT variable, the firm-fixed effects model provides positive and significant estimates, consistent with H1. This positive relationship relates to the secondary segments, suggesting that firms operating in highly competitive environments face lower incentives to conceal information and tend to legitimize their reporting policies through an improvement of information on secondary segments, instead of revealing potential strategic information with more numerous primary segments. The results may be consistent with the idea that, even when firms operate in less competitive industries, and therefore have lower incentives to conceal segment information, the ingrained financial reporting practice of proprietary cost avoidance influences segment disclosure practices.

If we focus on the impact of governance variables on the disclosure decision (H3 and H4), regression coefficients on the %_IND variable reveal a positive and significant impact on the N_SEG dependent variable. In particular, the presence of independent directors seems to affect the decision to disclose a higher number of primary segments (Panel B) but not more secondary segments (Panel C). Even though the statistical significance remains only for the firm-fixed effects model, the results allow us to accept H4, confirming the positive impact of

independent directors on the segment disclosure decision and their significant role as a mechanism to promote transparency within an institutional context of highly concentrated ownership structures.

Regarding the impact of ownership structure on the segment disclosure decision (H3), the regression coefficients reveal a negative and significant impact on N_SEG. However, the coefficients are only statistically significant in the firm-fixed effects model. The results confirm the validity of H3 related to the negative impact of high ownership concentration on the level of segment disclosure.

(Insert table 9 around here)

Among the control variables, the results corroborate firm size as a key determinant in the segment disclosure decision. As previously stated, large firms have lower preparation costs but also greater demands for information from investors and for these reasons are required to disclose more segments. Regression coefficients are significantly positive in each of the three regression models performed for the two dependent variables. The results for the ROA control variable in Panels A, B and C do not support the idea that more profitable firms avoid revealing the results of their most profitable segments. Results for the LEV control variable are not consistent with the idea that highly leveraged firms are expected to disclose more information in order to comply with the creditors' information requirements. The fixed effects estimates reveal that leverage impacts negatively on the number of reported primary segments, but does not, however, affect the secondary segments. This negative relationship turns positive in the OLS regression estimation procedure.

However, since the statistical significance of the positive LEV estimator is weaker, we can conclude that the results partially corroborate the view that highly leveraged firms report fewer segments, particularly in the primary segment classification. Finally, results for the industry diversification variable N_SIC are consistent with the need for diversified firms to report more primary segments²¹. In fact, the

²¹ Firm-fixed effects models do not produce any estimates for variables that do not change over time. The industry diversification variable remains stable for the whole sample and therefore cannot be considered in the estimation of the firm-fixed effects model.

regression estimates are only significant in Panel B, when the total number of primary segments is used as the dependent variable.

When we extend the analysis to the N_ITEM dependent variable, the results in Table 9 for the proprietary cost N_COMPT variable are consistent with those obtained in Table 8 for N_SEG. The coefficients on N_COMPT in the firm-fixed effects model are significantly positive. Conversely, the estimates for the DifROE variable are not significant in Table 9. One possible explanation for these results can be found in the greater sensitivity of N_SEG to proprietary costs by comparison with N_ITEM; firms will be much more reluctant to increase the number of segments since the expected proprietary costs for greater disclosure will be higher, compared to a simple increase in the number of items. The non-significant coefficient on DifROE in Table 9 suggests that positive abnormal performance does not deter firms from disclosing P&L and BS items.

The results for the impact of corporate governance variables on the N_ITEM reveal that the presence of independent directors is associated with an increase in the number of items disclosed both in primary and secondary segments. The statistical significance remains only for the fixed-effects model and is particularly high in Panels A and C. This may indicate that independent directors are particularly concerned with increasing transparency across secondary segments, given that, as reported in Table 3, the mean number of items is 1.64 compared to 7.38 in primary segments. However, majority shareholders seem to deter managers from increasing the number of reported items in secondary segments, as the regression coefficients on CCAP in Panel C are significantly negative.

Even though the results are generally consistent with the posited argument that proprietary costs are a determinant of the segment disclosure decision within the Spanish context, and particularly of the number of segments reported, they must be interpreted cautiously due to some variation across the regression estimates. The evidence may also be interpreted as indicating a certain decrease in the relevance of proprietary costs to the segment disclosure decision due to the introduction of the IAS 14 whose requirements are mandatory for listed

Spanish companies.

In spite of the traditional relevance of competition and proprietary costs indetriment to transparency in influencing segment reporting, given the new IAS/IFRS reporting standards, and in the presence of independent directors, these two factors seem to play a significant role in determining the amount of reported information. Indeed, in an institutional context of high ownership concentration, where the results corroborate the tendency of majority shareholders to reduce the level of reported information, independent directors seem to play a significant role in reversing this situation.

Given the new IFRS 8 segment reporting framework, independent directors are likely to play a role in limiting the flexibility afforded by the new standard with regard to concealing relevant segment reporting information as a way of avoiding potential competition costs. However, depending on the characteristics of the particular institutional setting, accounting regulators may need to work either on reducing reporting flexibility or on incorporating enforcement mechanisms to avoid non-disclosure practices.

5 Conclusions

We have exploited a specific national context to understand the relevance of proprietary costs and governance variables on the segment disclosure decision. More specifically, this article looks at the segment reporting practices in Spain since the adoption of IAS/IFRS in an attempt to understand the main factors influencing segment reporting in the 2005–2007 period. Within an institutional context with high sensitivity to proprietary costs and high ownership concentration, we try to ascertain whether (a) proprietary costs are still relevant in segment disclosure decisions, in spite of the mandatory information requirements laid out in IAS 14, and (b) if independent directors play a significant role in promoting transparency in spite of the presence of highly concentrated ownership structures.

Descriptive analysis reveals that, consistent with previous evidence, most companies selected the IAS 14 line of business criterion as their primary segment definition. Regression results confirm that, under the new IAS/IFRS reporting policies, independent directors appear to influence the level of reported information. In addition, the results also suggest that proprietary cost factors are still present in the segment

disclosure decision. In fact, the results highlight the differences in sensitivity of segment identification (N_SEG) and financial statement item inclusion (N_ITEM) to proprietary cost and governance variables, suggesting that firms are more reluctant to increase segments since the expected proprietary costs for greater disclosure will be higher than a simple increase in the number of items.

Studying the determinants of segment disclosure allows standard setters to discern whether there is a need to impose greater mandatory disclosures and reduce reporting flexibility to avoid information-concealing practices, or to strengthen mechanisms to promote information transparency. In the last two decades, the competent regulatory authorities have moved forward in both these directions, achieving greater transparency across listed firms, in order to provide users with more and better information for decision-making: new regulatory requirements for statutory audits and auditor supervision in the European Union (Directive 2006/43/EC), changes in the accounting standards for segment disclosure (SFAS 131, IAS 14R, IFRS 8), and governance codes that reinforce the role of independent directors. How do changes in both the regulatory and institutional environment affect the cost-benefit analysis of the disclosure decision over time?

The context of the new reporting standard IFRS 8 offers new opportunities to observe how the impact of governance and proprietary costs have changed over time, particularly whether the introduction of the new 'management approach' for segment reporting classification creates a context where fears of competitive harm may be overcome by the benefits arising from this new reporting approach. In this context, the governance structures are a key interacting factor that must guarantee that the flexibility of the new reporting standard is not used as a non-disclosure mechanism. Our future research aims to extend the analysis to the IFRS 8 context, in order to understand the implications that adopting this new standard has on segment reporting.

Acknowledgments We are grateful for the helpful comments and suggestions from the Editors of this special issue, the anonymous referees, Beatriz García Osma and the seminar participants at the 2010 Fifth International Workshop on Accounting and Regulation, the 2010 EAA XXXIII Annual Congress of the European Accounting Association in Istanbul (Turkey), the 2009 Annual Meeting of the Spanish Accounting Association (AECA), and the 2008 International Workshop on Empirical Accounting Research held in Madrid (Spain). We acknowledge financial

contributions from the Cátedra UAM/ ICJCE-AT1 of Financial Accounting Information and the Spanish Ministry of Innovation and Science (ECO2010-19314).

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Table 1 Sample selection procedure

	Companies N	
Non-financial firms listed on the Madrid Stock Exchange for the period 2005–2007	110	325
Non-consolidated data	(2)	(6)
Companies delisted due to merger and acquisition operations	(7)	(20)
Missing observations for segment information	(4)	(13)
Missing observations for corporate governance variables	(7)	(25)
Missing observations for control variables	(3)	(9)
Final sample	87	252

This table reports on the sample selection procedure. The initial sample of 110 listed non-financial companies (IBEX-35 and IGBM) excludes companies with non-consolidated financial statements, companies delisted due to merger and acquisition operations, firms with non-available segment reporting information, firms with missing information on the corporate governance structure and with non-available data for the control variables. N = observations

Table 2 Segment reporting criteria

	Primary segment			Secondary segment		
	Companies	N	%	Companies	N	%
By products	77	220	87.0	8	18	7.1
By geographical areas	13	29	11.5	70	194	77.0
N.a.	1	4	1.5	18	40	15.9
Total		252	100		252	100

This table reports the number of companies selecting either the ‘products’ or the ‘geographical areas’ criterion as their primary or secondary segment. N = observations; % refers to the percentage of observations in each category. n.a. non-available segment information. The total number of companies reported in the firms column is higher than 87, due to the fact that 3 companies change their primary segment reporting criteria along the time setting of analysis and therefore, they are identified under both type of categories: products and geographical areas. When looking at secondary segments, 6 additional firms change their reporting decision on secondary segments, either providing segment information for the first time, or excluding this information from the notes. Similarly, these firms are also codified twice in the second ‘Companies’ column

Table 3 Descriptive statistics for segment disclosure variables

Primary segment			Secondary segment		
N_SEG	N_ITEM BS	N_ITE M P&L	N_SEG	N_ITEM BS	N_ITE M P&L

Mean					1.82	1.40
Median	4	4	8	3	1	1
Std	1.52	5.86	5.09	2.29	3.22	2.44
Max	10	26	25	13	24	21
Min	1	0	0	0	0	0

This table reports the number of segments and financial statement items included in the primary and secondary segment reports. N_SEG denotes the number of segments identified; N_ITEM denotes the number of balance sheet (BS) and profit and loss account (P&L) items included

Table 4 Mean values of segment disclosure variables by year

Years	Primary segment			Secondary segment		
	Mean values			Mean values		
	N_SEG	N	N_ITEM	N_SEG	N	N_ITEM
			P&L			P&L
		BS			BS	
2005	4.03	4.89	7.60	3.04	1.63	1.43
2006	3.72	6.72	8.49	3.30	1.86	1.36
2007	3.81	6.87	8.64	3.37	1.98	1.41

This table gives the breakdown by year of the numbers of segments and financial statement items in the primary and secondary segment reports. N_SEG denotes the number of segments identified; N_ITEM denotes the number of balance sheet (BS) and profit and loss account (P&L) items included

Table 5 Descriptive statistics for the main explanatory variables

Variables	N	Mean	Median	Standard deviation	Maximum	Minimum	N	%
		n	n		m	m		
OWN	252	55.46	58.94	23.00	99.33	0		
MAJ_OW	252	31.66	24.53	22.95	99.33	0		
N_MAJ	252	4.06	4	2.36	12	0		
%_IND	252	0.32	0.30	0.18	0.81	0		
%_GRAY	252	0.42	0.1	0.24	1	0		
N_COMP	252	17.26	13.5	14.650	117	1		
T_SIC	252	4.84	5	2.743	13	1		
DifROE	252	0.03	0.01	0.365	4.94	-1.09		
SIZE	252	13.98	13.84	1.920	18.51	9.08		
LEV	252	1.73	1.26	2.993	28.38	-27.83		

ROA	252	0.05	0.05	0.063	0.38	-0.22		
ROE	252	0.17	0.15	0.366	5.03	0.86		
Duality = 1	252						189	75.0 %
CCAP = 1	252						143	56.7 %
DifROE	252						136	54.0 %
0								

This table reports the mean, median, standard deviation, maximum and minimum values for the following continuous variables: OWN = Ownership concentration measured as the sum of equity shares controlled by the majority shareholders, defined in regulation as those controlling more than 3 % of the outstanding shares of the firm; MAJ_OWN = Percentage of the equity shares controlled by the main shareholder; N_MAJ = Number of majority shareholders. %_IND = percentage of independent directors on the Board; %_GRAY = percentage of gray directors on the Board; N_COMPT = Number of competitors within the firm's main industry sector, where the main industry sector is identified from the primary NACE industrial code reported on the Amadeus database and the number of competitors is from the Spanish Central Bank database on sector-based performance of non-financial corporations; N_SIC = number of industries in which the firm operates; DifROE = The firm's industry-adjusted Return on equity, calculated as the difference between the firm's ROE and the Industry ROE given in the Spanish Central Bank database on sector-based performance of non-financial corporations, based on the firms' main NACE classification and size; SIZE = logarithm of total assets; LEV = Debt to equity ratio; ROA = Return on assets. This table also reports the frequency values and percentages for the following dichotomous variables: Duality takes the value 1 if the Chairman and CEO are the same person, otherwise 0; CCAP takes the value 1 when the firm's main shareholders own more than the average capital concentration in the sample (55, 46 %), otherwise 0

Table 6 Non-parametric test statistics

Variables		Obs	N_SEG	T-stat/ Z-stat	Pr > t Pr > Z	ITEM	T-stat/ Z-stat	Pr > t Pr > Z
%_IND	<	130	6,52	-2,34**	0,0202	17,82	0,22	0,8285
	mean							
	>	122	7,37	2,13**	0,0332	17,47	-0,74	0,4607
%_GRAY	<	135	6,99	0,37	0,7095	17,16	-0,66	0,5077
	mean							
	>	117	6,85	-0,22	0,8281	18,21	0,88	0,3767
CCAP	= 0	109	6,94	0,22	0,8258	16,36	-2,40**	0,0165
	= 1	143	6,93			18,63		
N_COMPT	<	144	6,66	-1,64###	0,1025	15,73	-2,58**	0,0108
	mean							
	>	108	7,29	1,27	0,2035	20,20	1,23	0,217
	mean							

DifROE	=1	136	6,59	1,91*	0,0579	17,77	0,724	0,4692
	= 0	116	7,33			17,51		
Size	< mean	140	5,76	-7,54***	<.0001	14,81	-3,83***	0,0002
	> mean	112	8,38	7,09***	<.0001	21,19	3,03***	0,0025
Leverage	< mean	163	6,69	-1,67*	0,0976	16,88	-1.31 [#]	0,1906
	> mean	89	7,37	1,21	0,2244	19,06	0,80	0,422
ROA	< mean	131	7,22	1,66*	0,0980	18,69	1,35 [#]	0,1785
	> mean	121	6,61	-1,59 [#]	0,1119	16,52	-3,01***	0,0026
N_SIC	< mean	114	6,43	-2,49**	0,0135	16,42	-1.44 [#]	0,151
	> mean	138	7,34	3,09***	0,002	18,66	1,72*	0,086

This table reports the results for the T-test difference in means on segment reporting information disclosure using the mean value of the independent variables as the discriminate factor to create the two subsamples (N_SEG and N_ITEM). The T-test significance allows us to reject the null hypothesis of equality of means for the sub-samples. As the T-test assumes normality on the distribution of the variables, we additionally report the results for the non-parametric Wilcoxon Mann Whitney test. Differences in the sign of the reported T-statistics and Z-statistics are due to the use of a different reference sub-sample to perform the statistic. On the T-stat, the reference group refers to below-the-mean sub-sample, while on the Z-stat the reference group is the above-the-mean sub-sample. The measurement of the independent variables has been performed as follows: %_IND = percentage of independent directors on the Board; %_GRAY = percentage of gray directors on the Board; N_COMPT = Number of competitors within the firm's main industry sector. The main industry sector is identified based on the primary NACE industrial code reported on the Amadeus database. The number of competitors is collected from the Spanish Central Bank database on performance sectorial rates for non-financial corporations; N_SIC= number of industry codes where the firm operates; Size = logarithm of total assets; Leverage = Debt to equity ratio; ROA = Return on assets; DifROE takes value 1 if the firm's industry adjusted ROE is positive. It takes value 0 for a negative adjusted ROE. The firm's industry adjusted ROE is calculated as the difference between the firm's ROE and the Industry ROE. Ccap takes value 1 when the firm's main shareholders own more than the average capital concentration of the sample (55,46%), otherwise it takes value 0.

[#] 10% significant – one-tailed T-test / * 10% significant - two-tailed T-test

[#] 5% significant – one-tailed T-test/ ** 5% significant - two-tailed T-test.

1% significant – one-tailed T-test / *** 1% significant - two-tailed T-test

Table 7 Pearson and Spearman Correlation matrix

	ITEM	SEG	CCAP	%_IND	%_GRAY	N_COMPT	N_SIC	DifROE	Size	Leverage	ROA
ITEM Sig. (2-tailed)	1	0,1313**	0,0894	-0,0153	0,0081	0,1273**	0,1093*	0,0101	0,2952***	0,0398	-0,0929
		<i>0,0373</i>	<i>0,1571</i>	<i>0,8090</i>	<i>0,8985</i>	<i>0,0435</i>	<i>0,0833</i>	<i>0,8728</i>	<i><.0001</i>	<i>0,5297</i>	<i>0,1412</i>
SEG	0,1429**	1	-0,0022	0,2019**	-0,0561	0,0538	0,0746	-0,1264**	0,5259**	0,1106	-0,0432
	<i>0,0232</i>		<i>0,9728</i>	<i>0,0013</i>	<i>0,3749</i>	<i>0,3953</i>	<i>0,2380</i>	<i>0,0450</i>	<i><.0001</i>	<i>0,5297</i>	<i>0,4952</i>
CCAP	0,1514**	-0,0140	1	-0,2661***	0,1950**	0,1384**	-0,0168	-0,0992	0,1296**	0,1106*	0,1460**
	<i>0,0161</i>	<i>0,8540</i>		<i><.0001</i>	<i>0,0019</i>	<i>0,0281</i>	<i>0,7910</i>	<i>0,1161</i>	<i>0,0398</i>	<i>0,0897</i>	<i>0,0204</i>
%_IND	-0,0746	0,1858***	-0,2360***	1	-0,7386***	-0,0580	0,1056	0,0983	0,2017**	0,0177	0,0853
	<i>0,2377</i>	<i>0,0031</i>	<i>0,0002</i>		<i><.0001</i>	<i>0,3592</i>	<i>0,0945*</i>	<i>0,1195</i>	<i>0,0013</i>	<i>0,7833</i>	<i>0,1769</i>
%_GRAY	0,0494	-0,0288	0,1941***	-0,7347***	1	0,0266	-0,0137	-0,0959	0,0081	0,0039	-0,0453
	<i>0,4350</i>	<i>0,6492</i>	<i>0,0020</i>	<i><.0001</i>		<i>0,6747</i>	<i>0,8281</i>	<i>0,1289</i>	<i>0,8983</i>	<i>0,9508</i>	<i>0,4737</i>
N_COMPT	0,0470	0,0960	0,1137**	0,0005	0,0156	1	0,1595**	-0,1485**	0,1897**	0,1341**	-0,0838
	<i>0,4577</i>	<i>0,1285</i>	<i>0,0715</i>	<i>0,9938</i>	<i>0,8052</i>		<i>0,0112</i>	<i>0,0184</i>	<i>0,0025</i>	<i>0,0334</i>	<i>0,1846</i>
N_SIC	0,1203*	0,1251**	-0,0338	0,1138*	-0,0346	0,0808	1	-0,1160*	0,0165	-0,0156	-0,0785
	<i>0,0565</i>	<i>0,0473</i>	<i>0,5933</i>	<i>0,0713</i>	<i>0,5841</i>	<i>0,2013</i>		<i>0,0661</i>	<i>0,7939</i>	<i>0,8058</i>	<i>0,2145</i>
DifROE	-0,0458	-0,1203*	-0,0992	0,1083*	-0,1026	-0,1510*	-0,1308**	1	0,0781	0,0749	0,358***
	<i>0,4691</i>	<i>0,0565</i>	<i>0,1161</i>	<i>0,0863</i>	<i>0,1042</i>	<i>0,0165</i>	<i>0,0380</i>		<i>0,2169</i>	<i>0,2360</i>	<i><.0001</i>

Size	0,1792***	0,4972***	0,1908***	0,1333**	0,0981	0,2192***	-0,0208	0,0992	1	0,2478***	0,1575**
	<i>0,0043</i>	<i><.0001</i>	<i>0,0024</i>	<i>0,0345</i>	<i>0,1202</i>	<i>0,0005</i>	<i>0,7428</i>	<i>0,1164</i>		<i><.0001</i>	<i>0,0123</i>
Leverage	0,0807	0,1522**	0,1750***	0,0492	-0,0497	0,3060***	-0,0180	0,1806**	0,3929***	1	0,0219
	<i>0,2014</i>	<i>0,0156</i>	<i>0,0053</i>	<i>0,4369</i>	<i>0,4324</i>	<i><.0001</i>	<i>0,7765</i>	<i>0,0040</i>	<i><.0001</i>		<i>0,7292</i>
ROA	-0,2004***	-0,0613	-0,0219	0,0963	-0,0804	-0,0704	-0,1211*	0,4410***	0,1601**	-0,1874**	1
	<i>0,0014</i>	<i>0,3322</i>	<i>0,7299</i>	<i>0,1274</i>	<i>0,2035</i>	<i>0,2653</i>	<i>0,0549</i>	<i><.0001</i>	<i>0,0109</i>	<i>0,0028</i>	

This table reports the results for the Pearson and Spearman correlation coefficients for the dependent N_SEG and N_ITEM variables and the independent variables. SEG = the number of segments reported both in the primary and secondary categories; ITEM = number of balance sheet and P&L items reported both in the primary and secondary categories; Ccap takes value 1 when the firm's main shareholders own more than the average capital concentration of the sample (55,46%), otherwise it takes value 0; %_IND = percentage of independent directors on the Board; %_GRAY = percentage of gray directors on the Board; N_COMPT = Number of competitors within the firm's main industry sector. The main industry sector is identified based on the primary NACE industrial code reported on the Amadeus database. The number of competitors is collected from the Spanish Central Bank database on performance sectorial rates for non-financial corporations; N_SIC= number of industry codes where the firm operates; DifROE takes value 1 if the firm's industry adjusted ROE is positive It takes value 0 for a negative adjusted ROE. The firm's industry adjusted ROE is calculated as the difference between the firm's ROE and the Industry ROE; Size = logarithm of total assets; Leverage = Debt to equity ratio; ROA = Return on assets;

10% significant – one-tailed T-test / * 10% significant - two-tailed T-test

5% significant – one-tailed T-test/ ** 5% significant - two-tailed T-test.

1% significant – one-tailed T-test / *** 1% significant - two-tailed T-test

Table 8 Regression results for the dependent variable SEG_{it} (number of reported segments)

Panel A: SEG_{it}= Total number of reported segments

OLS					Firm-fixed effects			
	Coef.	s.e.	T-stat	Pr > t	Coef.	s.e.	T-stat	Pr > t
Constant	- 4,408* **	1,183	-3,72	0,000	9,071**	4,04 5	- 2,2 4	0,026
CCap	-0,250	0,337	-0,74	0,459	- 1,068***	0,33 0	- 3,2 3	0,002
%_IND	1,504# #	0,921	1,63	0,104	2,033**	0,81 3	2,5	0,013
N_compt	- 0,015#	0,011	-1,38	0,168	0,054***	0,01 8	3,0 4	0,003
N_SIC	0,045	0,057	0,79	0,431	-	-	-	-
DifROE	- 0,947* **	0,338	-2,8	0,005	0,116	0,26 1	0,4 5	0,656
Size	0,838* **	0,087	9,58	<0,000 1	1,082***	0,28 2	3,8 4	0,000
Leverage	0,002	0,054	0,05	0,971	-0,072* 2	0,04 2	- 1,7 2	0,087
ROA	- 3,591#	2,717	-1,32	0,188	-1,108	3,65 6	- 0,3	0,762
Obs	252				252			
R- Sq	33,16%				90,27%			
Adj R- Sq	30,95%				84,54%			
F (Prob > F)	15,07 (0,0000)				4,4 (0,0002)			

Panel B: SEG_{it}= Number of primary segments reported

OLS					Firm-fixed effects			
	Coef.	s.e.	t-stat	Pr > t	Coef.	s.e.	t-stat	Pr > t
Constant	-0,281	0,690	-0,41	0,684	-1,365	2,594	- 0,53	0,599
CCap	-0,094	0,197	-0,48	0,634	-0,561**	0,212	- 2,65	0,009
%_IND	0,325	0,536	0,61	0,545	1,217**	0,521	2,34	0,021
N_compt	-0,006	0,006	-0,98	0,328	0,009	0,011	0,77	0,441
N_SIC	0,051#	0,033	1,54	0,125	-	-	-	-
DifROE	-0,294#	0,198	-1,48	0,139	-0,041	0,170	- 0,24	0,809
Size	0,289***	0,051	5,69	<.0001	0,363**	0,181	2,01	0,046
Leverage	0,049#	0,031	1,57	0,119	-0,056**	0,027	-	0,039

ROA	-0,797	1,582	-0,5	0,615	0,597	2,351	2,08 0,25	0,800
Obs	249				249			
R-Sq	17,03%				85,33%			
Adj R-Sq	14,27%				76,69%			
F (Prob > F)	6,13 (< 0,0001)				2,46 (0,0202)			

Panel C: SEG_{it} = Number of secondary segments reported

	OLS				Firm-fixed effects			
	Coef.	s.e.	t-stat	Pr > t	Coef.	s.e.	t-stat	Pr > t
Constant	-3,379***	1,082	-3,12	0,002	-7,930**	3,518	-2,25	0,026
CCap	-0,178	0,295	-0,6	0,547	-0,506*	0,283	-1,79	0,076
%_IND	1,104	0,811	1,36	0,175	0,773	0,709	1,09	0,277
N_compt			-1,0	0,294	0,047***	0,015	3,06	0,003
N_SIC	-0,010 -0,017	0,010 0,050	5 -0,35	0,729				
DifROE	-0,668**	0,296	-2,26	0,025	0,178	0,229	0,77	0,440
Size	0,512***	0,079	6,49	0,000	0,740***	0,243	3,04	0,003
Leverage	-0,038	0,047	-0,82	0,416	-0,014	0,037	-0,38	
ROA	-3,269	2,389	-1,37	0,172	-2,350	3,431	-0,68	
Obs	243				243			
R- Sq	19,20%				88,59%			
Adj R- Sq	16,44%				81,60%			
F (Prob > F)	6,95 (< 0,0001)				2,36 (0,0259)			

This table reports the results for the multiple regression analysis for the SEG_{it} dependent variable. Ccap takes value 1 when the firm's main shareholders own more than the average capital concentration of the sample (55,46%). Otherwise, it takes value 0. Capital concentration is measured as the sum of equity shares controlled by the majority shareholders. Following the regulatory postulates, majority shareholders are those controlling more than 3% of the outstanding shares of the firm ; %_IND = percentage of independent directors in the Board; N_COMPT = Number of competitors within the firm's main industry sector. The main industry sector is

identified based on the primary NACE industrial code reported on the Amadeus database. The number of competitors is collected from the Spanish Central Bank database on performance industry rates for non-financial corporations; N_SIC= number of industry codes where the firm operates; DifROE takes value 1 if the firm’s industry adjusted ROE is positive It takes value 0 for a negative adjusted ROE. The firm’s industry adjusted ROE is calculated as the difference between the firm’s ROE and the Industry ROE; Size = logarithm of total assets; Leverage = Debt to equity ratio; ROA = Return on assets;

10% significant – one-tailed T-test / * 10% significant - two-tailed T-test

##5% significant – one-tailed T-test/ ** 5% significant - two-tailed T-test.

1% significant – one-tailed T-test / *** 1% significant - two-tailed T-test

Table 9 Regression results for the dependent variable ITEM_{it} (number of reported items) for the primary and secondary segmentation criteria.

Panel A: ITEM_{it} = Total number of reported items

OLS					Firm-fixed effects			
	Coef.	s.e.	T-stat	Pr > t	Coef.	s.e.	T-stat	Pr > t
Constant	- 13,467 **	5,822	-2,31	0,0216	- 46,804 ***	12,122	-3,86	0,0000
CCap	1,614	1,657	0,97	0,3312	-0,929	0,990	-0,94	0,35
%_IND	-4,052	4,531	-0,99	0,3213	10,599 ***	2,436	4,35	0,0000
N_compt	0,037	0,055	0,67	0,5035	0,118* *	0,054	2,2	0,029
N_SIC	0,462#	0,282	1,64	0,1029	-	-	-	-
DifROE	1,964	1,664	1,18	0,2391	-0,196	0,781	-0,25	0,802
Size	2,121** *	0,430	4,93	<.0001	4,328* **	0,844	5,13	0,0000
Leverage	-0,221	0,263	-0,84	0,4013	-0,036	0,126	-0,29	0,776
ROA	- 32,836 **	13,36 8	-2,46	0,0147	- 17,298	10,956	-1,58	0,116
Obs	252				252			
R- Sq	13,22 %				95,31 %			
Adj R- Sq	10,36 %				92,55 %			
F (Prob > F)	4,63 (0,0000)				6,94 (0,0000)			

Panel B: ITEM_{it} = Number of items reported on the primary segments

OLS					Firm-fixed effects			
	Coef.	s.e.	t-stat	Pr > t	Coef.	s.e.	t-stat	Pr > t
Constant	-3,370	4,592	-0,73	0,464	- 32,408** *	11,165	-2,9	0,004

CCap	2,477*	1,311	1,89	0,060	0,606	0,911	0,66	0,507
%_IND	-6,117*	3,566	-1,72	0,088	4,250*	2,242	1,9	0,06
N_compt	0,038	0,043	0,88	0,379	0,042	0,049	0,84	0,401
N_SIC	0,319#	0,223	1,43	0,153				
DifROE	1,065	1,318	0,81	0,420	-0,997	0,732	-1,36	0,175
Size	1,240** *	0,339	3,66	0,000	3,235***	0,777	4,16	0,000
Leverage	-0,047	0,207	-0,23	0,820	-0,255	0,116	-0,22	0,827
ROA	- 29,234 ***	10,52 7	-2,78	0,006	1,324	10,120	0,13	0,896
Obs	249				249			
R- Sq	12,16 %				93,50%			
Adj R- Sq	9,23%				89,67%			
F (Prob > F)	4,15 (0,0001)				4,09 (0,0004)			

Panel C: ITEM_{it} = Number of items reported on the secondary segments

OLS					Firm-fixed effects			
	Coef.	s.e.	t-stat	Pr > t	Coef.	s.e.	t-stat	Pr > t
Constant	- 9,415** *	2,651	-3,55	0,000 5	-13,382*	6,823	-1,96	0,052
CCap	-1,073#	0,723	-1,48	0,139 2	- 1,562***	0,549	-2,84	0,005
%_IND	2,194	1,986	1,1	0,270 4	7,147***	1,374	5,2	0
N_compt			0,02	0,980 4	0,066**	0,030	2,21	0,028
N_SIC	0,001 0,119	0,024 0,122	0,97	0,332 2	-	-	-	-
DifROE	0,863	0,725	1,19	0,234 6	0,680#	0,445	1,53	0,128
Size	0,844** *	0,193	4,37	<0,00 1	1,024**	0,472	2,17	0,032
Leverage	-0,156	0,114	-1,37	0,174 3	-0,030	0,071	-0,43	0,67
ROA	-3,171	5,850	-0,54	0,588 3	-15,871	6,662	-2,38	0,018
Obs	243				243			
R- Sq	10,96 %				92,12%			
Adj R- Sq	7,92%				87,28%			
F (Prob > F)	3,60 (0,000 6)				6,09 (0,0000)			

This table reports the results for the multiple regression analysis for the $ITEM_{it}$ dependent variable. Ccap takes value 1 when the firm's main shareholders own more than the average capital concentration of the sample (55,46%). Otherwise, it takes value 0. Capital concentration is measured as the sum of equity shares controlled by the majority shareholders. Following the regulatory postulates, majority shareholders are those controlling more than 3% of the outstanding shares of the firm; %_IND = percentage of independent directors in the Board; N_COMPT = Number of competitors within the firm's main industry sector. The main industry sector is identified based on the primary NACE industrial code reported on the Amadeus database. The number of competitors is collected from the Spanish Central Bank database on performance industry rates for non-financial corporations; N_SIC= number of industry codes where the firm operates; DifROE takes value 1 if the firm's industry adjusted ROE is positive. It takes value 0 for a negative adjusted ROE. The firm's industry adjusted ROE is calculated as the difference between the firm's ROE and the Industry ROE; Size = logarithm of total assets; Leverage = Debt to equity ratio; ROA = Return on assets;

10% significant – one-tailed T-test / * 10% significant - two-tailed T-test

5% significant – one-tailed T-test/ ** 5% significant - two-tailed T-test.