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Voluntary Disclosure of Press Releases and the Importance of Timing: A Comparative Study of the UK and Spain

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Abstract This paper investigates the effect of proprietary costs in relation to managers' decisions to disclose information. Further, we look into the impact of factors affecting the timing of disclosures in a comparative study of Spain and the UK. Our investigation focuses on management earnings press releases discussing annual results. These press releases allow managers great discretion in terms of the decision to release and the timing. Our results show that the potential for growth is negatively related to the likelihood of a company voluntarily issuing a press release. Moreover, once the decision to voluntarily disclose is made, the timing is also relevant. We find significant differences in the timing of press releases between the two countries examined in this study. Also, significant differences between companies having or not having an investor relations department are evident. The existence of an investor relations function in the company seems to have a different impact depending on the country. Interestingly, even though corporate performance seems not to have a direct effect on the timing of the press release, this factor is moderated by the country where companies operate.

Keywords Voluntary disclosure · Press releases · Timing · Investor relations department · Spain · UK

1 Introduction

The globalization of capital markets and the increase in foreign investors have brought pressure on companies to provide greater value to shareholders prompting

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standards setters to make changes in regulation toward harmonisation and international standards (Moden and Oxelheim 1997; Strange et al. 2009). Differences in disclosure practices may jeopardise the harmonisation process because international investors may not be able to reliably compare information issued by companies in different countries (Alhashim 1982). To address these issues, we investigate whether proprietary information costs influence the decision to issue a press release and include a number of control factors which have been found to have an effect on the disclosure of press releases in prior literature (Guillamón-Saorín and Sousa 2010). Specifically, we investigate the circumstance in which managers have made the decision to issue a press release and concentrate on the determinants of timing and whether there are differences across the countries included in this study (Spain and the UK).

Most firms have no formal policies for voluntary disclosure. Thus, the level of disclosure for a company is determined by its costs and benefits. Managers have discretion to decide on the nature, content, venue and timing of voluntary disclosure and the incentives they have to disclose or not will drive the final decision. Voluntary information points to different managerial attitudes related to this discretion. We examine growth opportunities as an indicator of proprietary information which has been widely used and accepted in prior literature (Bamber and Cheon 1998; Clarkson et al. 1994). Growth opportunities are a sign of availability of profitable investments which are attractive for competitors or new investors. The possibility of growth opportunities may drive managers to withhold information to deter potential competitors from entering the market. However, sometimes managers have no choice in relation to disclosure because no news could be interpreted as bad news (Francis et al. 2008; Verrecchia 1990). Once the decision to release has been made, managers have to decide on when to release the information. Management discretion related to timing may have high potential for strategic behaviour. For example, managers could decide to disclose the good news quickly and delay the bad news (Sengupta 2004).

Timing is an important quality of financial information (Financial Accounting Standards Board 1980). The International Accounting Standards Board (IASB) has recently discussed the importance of timeliness, which was initially considered as part of relevance[1] (IASB 2008). After further discussion and deliberation, the IASB concluded that information reported in a timely manner can positively affect relevance as well as the faithful representation of that information, and therefore needs to be considered as one of the enhancing qualitative characteristics of financial information that should be maximized to the extent possible (IASB 2008). In particular, the IASB states that *timeliness* means having information available to decision makers before it loses its capacity to influence decisions. Having relevant information available sooner can enhance its capacity to influence decisions, and a lack of timeliness can deprive information of its potential usefulness.

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[1] Relevance is one of the qualitative characteristics that make financial information useful. The qualitative characteristics are complementary concepts but can be distinguished as fundamental (relevance and faithful representation) and enhancing (comparability, verifiability, timeliness, and understand ability), based on how they affect the usefulness of information (IASB 2008).

Prior literature argues that timeliness is a key determinant in making the content of a document more effective in directing attention and that it is even capable of changing impressions (Daft and Lengel 1986). Therefore, an important factor to be considered by companies when deciding the date on which to voluntarily disclose information should be the potential benefits and costs of releasing quickly. Prior work investigates the timing of corporate disclosures using earnings announcements and earnings forecast errors to classify earnings announcements into good, bad or neutral news (e.g., Begley and Fischer 1998; Givoly and Palmon 1982; Kross 1981; Kross and Schroeder 1984). We investigate a particular type of earnings announcement, Annual Results Press Releases (hereafter ARPRs), which are issued to the market soon after the accounts are closed. As a result, they usually reach their audience before the annual report is released, thereby providing stakeholders with a summary of the financial results of the company in a timely manner.

In this study, we focus on Spanish and UK publicly traded companies and their decision to issue and the timing of ARPRs. Attempts related to timeliness regulation have been primarily confined to periodic reporting (e.g., interim or quarterly reports) in many countries. There are no explicit rules or guidance within the UK/Spanish Stock Exchange regulations regarding press releases because these are voluntary disclosures. However, there is a requirement (as specified in rules 9.1 and 9.2 of The Listing Rules of the London Stock Exchange in the UK and article 82 of the Law 24/1988 of 28 July of the Stock Exchange in Spain) that a company must inform a regulatory information service without delay of any price-sensitive information that is not public knowledge. Therefore, listed companies should not announce anything in a press release that may be considered price-sensitive unless it has already been announced via the regulatory news service.

We investigate Spain and the UK because these contexts represent extreme examples of the two main accounting philosophies: the continental system, represented by Spain, which is characterized by debt-oriented companies, and the code law system and the Anglo-Saxon philosophy, which is market-oriented and characterized by common law (La Porta et al. 1997). In addition, Spain represents the less transparent and more conservative set of countries while the UK represents the more transparent and optimistic set (Gray 1988). The opposing characteristics of the UK and Spain provide a good context in which to test a number of new dimensions alongside previously tested variables.

Thus, this study contributes to the literature in the following ways. Firstly, we add to the literature on voluntary disclosure by investigating documents (ARPRs) which have not been widely explored in prior research.[2] The current paper presents evidence of the relevance of proprietary costs on the management decision to issue an ARPR.

Secondly, our work adds to the current debate on the differences in disclosure practices among countries and the progress needed toward harmonization (e.g., Kolk 2005). In this context, there has been a vigorous debate as to whether and how a firm's home-country legal system still plays a role in determining company disclosure strategies (Leuz et al. 2003; Shi et al. 2012). The growth in international transactions has obliged business to pay

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[2] While a recent study by Guillamón-Saorín and Sousa (2010) investigates the factors that influence the disclosure of ARPRs, it does not look into proprietary costs related to corporate disclosure.

greater attention to international differences in information reporting and disclosure practices (Alhashim 1982; Shi et al. 2012). The internationalization of markets and the importance of international investment make studies comparing reporting practices in different countries relevant and valuable. Our hypotheses are tested in a cross-national context, using Spain and the UK. We demonstrate that country characteristics still matter in today's global business environment.

Thirdly, we investigate whether firms facing higher agency costs provide more timely information. Agency theory underpins the need to reduce information asymmetries between managers and owners of publicly listed companies. In agency theory, information is considered a commodity which implies issuing costs. This gives special relevance to corporate information systems monitoring management behavior. A more efficient management monitoring can be achieved by the request of more information and more timely disclosures. Managers have the choice to delay or pre-empt the disclosure of ARPRs and this makes them an interesting venue through which to investigate the choice in timing. To our knowledge, this is the first study investigating the timing of this type of disclosure.

In particular, we examine the effect of country, the existence of an investor relations department and corporate performance on timing of disclosure. Agency theory would suggest that these variables affect disclosure and transparency which is one of the main management monitoring devices proposed by agency theory (Eisenhardt 1989). We further analyze the moderating effect of the national context in which these disclosures happen. The cross-variable effects of these variables in voluntary disclosure have not been previously analyzed. Lastly, the design of the study allows us to provide insights into the two decisions (i.e., the decision to issue/not issue, and the timing of the ARPR) jointly. This presents a more complete picture to better understand the management disclosure strategies.

The next section of the paper provides the background for the institutional setting in Spain and the UK. Section three reviews the theoretical background and research hypotheses. Section four describes the method used to carry out the study. After presenting the results, and a discussion of their implications, the paper highlights the main conclusions and provides directions for further research.

2 Institutional Setting: Spain and the UK

This study is framed in the international context by investigating cross-national differences in disclosure practices. Firms in different countries face variations in geography, climate, language, and culture, as well as institutional differences (Allred and Swan 2004; Strange et al. 2009). The literature defines two types of institutional constraints: (1) Formal, such as laws, regulations, and state policies; and (2) informal, such as culture and social trust (Li et al. 2010). Both constraints have been supported by empirical research and are considered valid arguments, but the informal one raises more controversy and criticism (Baskerville 2003).

We use the elements of formal institutional constraints, which provide a more solid argument than the informal ones, to support our hypotheses on country differences in

relation to disclosure practices. Factors such as the legal system, capital markets and economic development affect managers' incentives and influence corporate reporting (Ball et al. 2003) as well as disclosure levels (Hope 2003; Jaggi and Low 2000). Code-law countries (such as Spain) are considered to have a weak legal environment as they have lower quality law enforcement and investors have weaker legal rights than common-law countries (such as the UK) (La Porta et al. 1997, 1998). Leuz et al. (2003), using cluster analysis, measure variables related to the institutional framework (e.g., outsider investor rights, legal enforcement, ownership concentration) and disclosure practices. Countries are grouped into three clusters. Countries in each cluster have similar institutional characteristics. The characteristics of the first group are the existence of outsider economies with large stock markets, dispersed ownership, strong investor rights, and strong legal enforcement. The second group has insider economies with less-developed stock markets, more concentrated ownership, weak investor rights, but strong legal enforcement. The third group features insider economies with weak legal enforcement.

The countries involved in the current study, the UK and Spain, are at opposite ends of this spectrum, with the UK in the first group representing economies with widely developed stock markets and Spain in the third group representing economies with less developed stock markets. Thus, the selection of these two countries is particularly interesting because of their differences in culture, legal, and institutional systems (La Porta et al. 1997, 1998) providing useful insights for the international business research. Besides, prior research finds that the country legal and institutional environment influences corporate reporting and, in particular, countries with strong legal environments such as the UK have better disclosure quality than countries with weak legal environments such as Spain.

3 Theory Development and Research Hypotheses

The integration of agency theory and proprietary costs helps us to understand better the trade-offs between costs and benefits associated with voluntary disclosure and disclosure timing in an international context. Agency theory posits that the separation of ownership and control in publicly listed companies gives rise to information asymmetries and conflict of interest between managers and investors where managers have superior information (Jensen and Meckling 1976). The theory predicts that the manager (agent) will act in his or her own interest rather than in the interest of the owners (principal). Agency theory asserts that disclosure may reduce the agency costs in the relationship between the fund providers and the management (Prencipe 2004). In the presence of information asymmetries, a mechanism is needed to adequately align the wealth-maximizing incentives of corporate managers with those of the shareholders. Corporate disclosure is critical to reduce this information asymmetry and lead to more efficient capital markets. Institutional characteristics of different countries may affect agency costs in relation to voluntary disclosure differently. In this sense, Shi et al. (2012) emphasizes the need to investigate this issue in an international context.

One of the main disincentives to providing discretionary disclosure is that of proprietary costs (Healy and Palepu 2001). Proprietary costs are particularly important in decisions about voluntary disclosure (Meek et al. 1995). Proprietary cost theory (Verrecchia 1983; Wagenhofer 1990) is based on the premise that companies limit voluntary disclosure of information to the financial market because of the existence of disclosure related costs (proprietary costs). These costs relate to preparing and disseminating information and also the cost originating from disclosing information which may be used by competitors and other parties and which may harm the reporting company. Proprietary cost theory is linked to agency costs theory in that a company with low proprietary costs (e.g., low growth opportunities) will probably have higher agency costs than one with high proprietary costs. This is so because companies with a lower level of proprietary costs are also likely to be those with lower cash flow due to inadequate management and this leads to higher agency costs (Doukas et al. 2005). The consequence is that companies with high proprietary costs have fewer incentives to voluntarily disclose information.

Moreover, the extent to which voluntary disclosures provide useful information to market participants will depend not only on the nature of the information released but also on when it is released (Healy and Palepu 2001; IASB 2008). Companies may wish to deter competitors' market entry by withholding good news. However, sometimes companies do not have any choice because rational investors may interpret nondisclosure as an indication of the existence of unfavorable information (Francis et al. 2008; Verrecchia 1990). Therefore, we first address the issue of the management decision to disclose information voluntarily and the effect of the existence of proprietary costs on this decision. After considering the initial decision to disclose, we then explore the factors that influence the decision of the timing of the release (i.e., managers have discretion in choosing the date on which they make the disclosure).

3.1 Proprietary Costs and Voluntary Disclosure

Proprietary cost theory is based on the assumption that, in the absence of these costs, companies have incentives to disclose information voluntarily to the market to reduce information asymmetry. The existence of proprietary costs alters the equilibrium model.

According to Verrecchia (1983), the higher the proprietary costs associated with the disclosure, the less negatively investors react to the withholding of relevant information, which leads to a lower probability of companies voluntarily disclosing information. From a different perspective, revealing information on growth opportunities, which would attract new investors, could have a favourable effect on reducing agency costs. Due to the noise caused by the agency conflict and information problem, it is difficult for management to make disclosure decisions. When disclosing information, management has to consider costs and benefits to determine whether the benefits of disclosure outweigh the costs. Management reluctance to disclose can have numerous motivations. Lundholm and Van Winkle (2006) summarize these motivations and argue that there are situations where management obtains no benefits from disclosure or incurs in high proprietary costs not covered by the benefits.

Analytical studies consider the situation where a competitive environment gives rise to a preference for withholding information (Darrough and Stoughton 1990; Spulber 1995; Wagenhofer 1990). Dontoh (1989) shows that managers have incentives to disclose both good and bad news. They support the theory that managers disclose good news to stockholders and bad news to competitors. This research implies that negative news is intended to discourage potential competitors from entering the market. Empirical studies have also demonstrated that the higher the proprietary costs, as measured by growth opportunities, the more reluctant managers are to reveal information that could support the value of these opportunities and encourage competitors to join the market (Bamber and Cheon 1998; Clarkson et al. 1994). Accordingly, the following hypothesis is suggested:

Hypothesis 1: Companies with higher proprietary information costs (i.e., potential for growth) are less likely to issue an ARPR.

3.2 Determinants of Timing

Providing certain disclosures leads companies to make an implicit commitment to issuing similar disclosures in the future (Einhorn and Ziv 2008). Therefore, not disclosing is sometimes not an option for companies. In this context, the timing of the disclosures might be an additional lever for managers as part of their communication strategies. Consequently, after considering the decision to disclose, we now investigate the factors affecting the timing of the release.

Using the framework provided by agency theory, we explore whether disclosure timing is affected by differences in legal systems and institutional characteristics existing between countries. According to agency theory, even for managers with incentives to share information with outsiders and reduce information asymmetry, the legal environment and the institutional characteristics of the country where the company operates is a key aspect that should be considered, and will determine the managers' behavior in relation to disclosure practices (Leuz et al. 2003). As such, we look at the effect of country on timing.

Agency theory is based on management self-interest which leads to the need for monitoring devices to align their interest to those of the stockholders. The implication is that companies may be interested in investing in information systems to control managers' opportunism (Eisenhardt 1989). As a result, we also investigate the role of investor relations as a determinant of timing. One of the most important management monitoring strategies derived from agency theory is the corporate information system (Eisenhardt 1989). Information helps to reduce asymmetries between managers and owners and mitigate agency conflicts (Jensen and Meckling 1976). Investor relations departments function as intermediaries to provide financial markets with information about the company. Therefore, we examine the role of investor relations as an information control system to improve corporate transparency and reduce agency costs. We also investigate the effect of country as a moderating effect influencing the relationship between IRD and timing.

Another factor that is considered in this study is corporate performance. Performance is also a key factor related to corporate agency problems (Eisenhardt

1989). In line with agency theory, the timing of news depending on the direction of the performance, and moderated by the country where the company operates, is scrutinized in our study.

3.2.1 The Effect of Country on Timing

In a capital market context, investors' perceptions of a firm are important to corporate managers expecting to issue public debt or equity or to acquire another company in a stock transaction (Healy and Palepu 1993). Consequently, publicly listed companies intending to attract funds have incentives to provide voluntary disclosure which will lead to reducing information asymmetry and increasing transparency and credibility (Healy and Palepu 2001). The increase of transparency and credibility reduces the firm's cost of external financing. Besides demanding greater disclosure, investors also expect timely information from firms in which they are interested in investing (Bushee et al. 2003; Bushee and Noe 2000). The demand for timely information would be more evident in more liquid markets and also with more institutional investors (Sengupta 2004).

We explore the extent to which differences in disclosure timing may be explained by existing differences between countries. Agency problems are influenced by the legal environment leading to the need for corporate control mechanisms to constrain the conflict of interests between the organizational players (managers and owners), which vary significantly across different institutional settings (La Porta et al. 2000). Our main interest is related to the differences in the timing of ARPRs of Spanish and UK listed companies. It is expected that disclosure practice differences among countries (Meek et al. 1995) also affect the timing of disclosures. Agency costs are higher for companies with higher outside capital and with more concentrated and sophisticated ownership (Eisenhardt 1989; Jensen and Meckling 1976) and these companies are expected to release information faster to reduce information asymmetry. In our case, the UK has a more liquid market, greater spread ownership, and a higher number of institutional investors than does Spain (Corporate Governance Report 2005; Leuz et al. 2003). Therefore, we should expect that companies operating in the UK will have a shorter delay in releasing an ARPR to the market than companies operating in Spain. The hypothesis in this respect is as follows.

> Hypothesis 2: UK companies are likely to disclose an ARPR earlier than Spanish companies.

3.2.2 The Effect of Investor Relations Department on Timing

The aim to reduce information asymmetry and to improve the quality of information as proposed by agency theory, leads companies to find means to achieve this goal. Investor relations departments help in this task (Oxelheim et al. 2001). The investor relations function can assist companies in improving the communication process with market participants. The investor relations effect is reflected in the increase of corporate visibility as well as in the increase of market liquidity and reduction of cost of capital (Easley and O'Hara 2004).

Investor relations is defined as a strategic management responsibility that integrates finance, communication, marketing and securities law compliance to enable the most effective two-way communication between a company, the financial community, and other constituencies, which ultimately contributes to a company's securities achieving fair valuation (NIRI 2003). Thus, investor relations departments improve corporate disclosure strategy and maintain a good quality of disclosure (Marston and Straker 2001). They play a significant role in the corporate communication strategy and have the task of creating and managing the flow of their companies' information, as well as to prioritizing how, where and to whom the information is circulated (NIRI 2002). For example, Ettredge et al. (2001) argue that investor relations departments provide individual investors with comprehensive information on a timely basis that was in the past only available to a limited group of investors, such as analysts and institutional investors. We therefore expect that:

Hypothesis 3: Companies which have an investor relations department are more likely to issue an ARPR earlier than those which do not have one.

As argued above, the investor relations function plays an important role in reducing agency costs and facilitating capital market transactions and improving market liquidity (Easley and O'Hara 2004). However, the development of the investor relations function has been different across countries. In the case of Spain, the functions of investor relations and public relations are still developing. Spanish companies started organizing communication departments and developing corporate communication strategies relatively recently in comparison with other western European countries and, particularly, the UK. For example, according to studies conducted by Dircom in 1999 and 2004 (Dircom 2000, 2005) the majority of Spanish companies have communication departments but they are of recent vintage.[3] Consistent with the above evidence, country effect is likely to moderate the relationship between timing of disclosure and the existence of an investor relations department. Therefore, we hypothesize that the effect of investor relations departments on improving the timing (releasing earlier) of ARPRs will be stronger for UK companies than for Spanish ones. According to this argument we pose the following hypothesis.

Hypothesis 3a: The relationship between the existence of an investor relations department and timing is moderated by the country where the company operates: Spanish companies with an investor relations department are likely to issue the ARPR later than UK companies.

3.2.3 The Effect of Corporate Performance on Timing

Agency theory suggests that companies with better results are more likely to disclose information voluntarily (Ng and Koh 1994). If a manager's intention is to signal quality and firm value, s/he may not have the choice of not disclosing because this could be interpreted as withholding unfavorable information (Hughes 1986). When the non-disclosure is not an option because of the market conditions, managers may

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[3] The study of 1999 (Dircom 2000) shows that only 58 % of the companies have a communication manager to coordinate different communication activities.

use discretion related to the timing of disclosure to effectively guide market participants' decisions (Daft and Lengel 1986). In a capital market setting, companies with good news have incentives to disclose the news early to attract investment. Prior literature has documented that the type of news to be released (good or bad news) affects the timing of releases (Begley and Fischer 1998; Chambers and Penman 1984; Givoly and Palmon 1982; Kross 1981; Kross and Schroeder 1984; Sengupta 2004). Results of these studies show that the disclosure lag is longer for firms disclosing bad news.[4] More recently, Sengupta (2004) confirms the results supporting the contention that good news is reported earlier in a study of quarterly earnings announcements. In line with this argument, the following hypothesis is proposed.

Hypothesis 4: Companies with better performance are more likely to issue ARPRs earlier than those with bad performance.

The association between corporate performance and timing of disclosure may be affected by the institutional context investigated. As argued earlier, the presence of institutional and less concentrated ownership leads to more timely disclosure while the existence of bad news leads to less timely disclosure (Sengupta 2004). It is also argued that firms with negative earnings news are more likely to be subject to litigation (Healy and Palepu 2001) and, therefore, in a higher litigious environment these companies have incentives to release their bad news quickly. In line with this argument, empirical evidence shows that litigation risk makes companies pre-empt bad news earnings by using voluntary disclosures (Skinner 1994). Following the above argumentation, UK companies which have a stronger presence of institutional investors, lower ownership concentration, and that face higher litigation risk than Spanish ones (La Porta et al. 1997, 1998; Leuz et al. 2003), would have more incentives to disclose bad news earlier. According to this, we can expect the following.

Hypothesis 4a: The relationship between corporate performance and timing is moderated by the country where the company operates: UK companies with worse performance are more likely to disclose earlier.

4 Method

4.1 Sample Selection Process

The analysis carried out in this paper is performed using data from the year 2000. A single year of data is examined to eliminate the potential confounding effects of changes in reporting rules over time and 2000 is selected to avoid the period in which the major recent financial scandals started. Since the Enron scandal came to light in 2001, the accounts of many other large US companies have been scrutinized and other scandals have emerged. The SEC issued its first cautionary advice on pro forma reporting in December 2001 (Securities and Exchange Commission (SEC) 2001). This could affect

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[4] These studies use different proxies for news. For example, analyst forecast errors are used by Begley and Fischer (1998). Sengupta (2004) uses the median analyst forecast as a benchmark to be compared with actual EPS.

not only the qualitative characteristics of the information content of disclosures but also the decision to disclose. In order to avoid this distorting effect, ARPRs issued during the year before these scandals came to light have been chosen as the focus of this study.

In this paper we include the entire population of publicly-listed Spanish companies. The population comprises 123 Spanish companies listed on the Madrid Stock Exchange after excluding foreign companies and investment societies. The population of Spanish companies is matched to a sample of UK companies. The matching process is done by industry and size following prior literature (e.g., Hussein 1996; Lang and Lundholm 2000). A matched-pair design[5] consists of selecting a UK firm in the same industry[6] and of a size similar to each Spanish company in the sample. Where more than one match was possible based on industry, the potential match closest in size was selected. This matching process resulted in 123 Spanish companies and 123 UK companies with similar characteristics for industry and capital market value.[7] Industry codes are obtained from Datastream whose index is based on categories used by the *Financial Times*. A fiscal year-end restriction is not applied. Therefore, companies that may have reporting periods other than for the calendar year 2000 are included.[8]

4.2 Collecting Press Releases

The ARPRs analysed in this study were gathered first from official sources (*Comisión Nacional del Mercado de Valores*-CNMV for Spanish ARPRs and Regulatory News Service-RNS for UK ARPRs). Where the ARPR was not available from this source, the company website was searched. Companies post ARPRs on their websites using the link 'media' or 'investor relations'. In the event of failure to locate an ARPR by these means, one of the authors made direct contact with the company to request the ARPR. This ensured that we gathered all ARPRs issued by the companies included in our sample. Out of the 246 companies, 52 Spanish and 22 UK companies did not issue an ARPR, representing 30 % of the total sample. At country level, this indicates that 42 % of the Spanish and 18 % of the UK companies did not issue an ARPR. These differences in disclosure by country are statistically significant (Chi square $= 17.39$, p $= 0.00$).

4.3 Measurement of Disclosure Levels and Timing

Measuring the extent of voluntary disclosure is one of the major limitations of research in this area (Healy and Palepu 2001). Prior work has used different proxies

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[5] Using a matched-pair design allows a more precise comparison between the two countries and provides a natural control for industry and size (Lang and Lundholm 2000).

[6] Datastream's FTAG4 index, also called INDC4, has up to 38 industrial sectors based on the FTSE-Actuaries system. It uses the same classification system for both Spanish and UK companies.

[7] A Mann–Whitney U test is used to check for the differences between the sizes of the sample of companies for the two countries. Market value mean for the UK is EUR 6,670 million and for Spain EUR 3,324 million. Results not tabulated showed no significant differences between the samples sizes (Z-statistic $= -0.04$; p $= 0.48$, two tailed probability).

[8] All the ARPRs included in the study were issued before October 2001.

including management forecasts (Miller and Piotroski 2000) or data from databases (e.g., the Center for International Financial Analysis) (e.g., Hope 2003; Hope et al. 2008; Jaggi and Low 2000). This study uses, as a measure of voluntary disclosure, the manager's decision to issue ARPRs. Our measure is more objective than an index based on items included in a corporate report (Buzby 1974; Cerf 1961; Choi 1973; Hussein 1996) because these indices are subject to the researcher's way of constructing them (Marston and Shrives 1991). The press releases investigated in this study are an important means of corporate disclosure because they influence investors' decision-making processes and are timelier than annual reports (Bowen et al. 2005; Francis et al. 2002; Lang and Lundholm 2000).

To measure timing, we follow prior literature and define a variable name, LAG, which is the number of days between the date of the ARPR and the end of the fiscal year (Bamber and Cheon 1998; Sengupta 2004).

4.4 Measurement of Independent Variables and Controls

4.4.1 Characteristics of Companies Issuing an ARPR

Our first model investigates the effect of proprietary costs on the decision to issue an ARPR. The proxy to measure proprietary information costs (GROWTH) is calculated as the market value scaled by total equity in year $t - 1$.[9] Our models also include several controls for management opportunities to engage in voluntary disclosure. We include potential for growth in the future (Clarkson et al. 1994). This proxy is the market-to-book ratio measured as market value scaled by total equity in year t (GROWTH_FU). We include a dummy variable (COUNTRY) that takes the value of 1 for UK and 0 for Spain. Research has shown that managers place great importance on simply meeting or exceeding a benchmark (Bowen et al. 2005; Graham et al. 2005; Short and Palmer 2003). This benchmark is more important than 'analysts' consensus estimate' and 'reporting a profit' in the ranking of measures used by CFOs to assess company performance (Graham et al. 2005). To capture the effect of company performance in the decision to issue an ARPR, we include a dummy variable (PERFORMANCE) which takes a value of 1 (Good news companies) when net profit for the current year exceeds the firm's net for the prior year and 0 (Bad news companies) when net profit for the current year does not exceed the net profit for the prior year. As in prior literature, we control for company size, growth opportunities and proprietary costs (Aljifri and Khasharmeh 2006; Bamber and Cheon 1998; Botosan and Harris 2000; Gaver and Gaver 1993).[10]

Company size is shown to be linked to different measures of disclosure in prior literature (Bushee et al. 2003; Frankel et al. 1999; Garcia-Meca and Sanchez-Ballesta 2006; Lang and Lundholm 1993). In this study, we define SIZE as the natural logarithm of the company market capitalisation (Bushee et al. 2003). Operating profit is also included as a control variable following prior literature (Schleicher et al. 2007;

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[9] Results are similar when we define the proxy as the market-to-book value of assets (Bamber and Cheon 1998; Gaver and Gaver 1993).

[10] As in prior literature (Bamber and Cheon 1998), we also vary the measure by scaling market-to-book value by assets. Results do not change.

Schleicher and Walker 2010). Schleicher et al. (2007) show that operating income (OPERA_PROF) is strongly associated with other measures of earnings persistence. They argue that the negative or declining income number has a higher impact on readers when this is a permanent rather than a transitory earnings number. Leverage (LEVERAGE) is a measure of company risk and it is included in most of the studies related to disclosure behavior (Archambault and Archambault 2003; Meek et al. 1995). Prior research suggests that disclosure levels and quality vary depending on the industrial sector examined (Botosan 1997). In this study, industry (INDUSTRY) is classified into the following sectors: 1 = consumer and capital intermediate goods, 2 = construction, 3 = financial services.

4.4.2 Effect of Timing on Disclosure

Once management has decided to issue an ARPR the decision in relation to the date of disclosure must be addressed. Managers have discretion in this regard and therefore, their decision may be associated with or explained by, different factors. We include COUNTRY and PERFORMANCE, which are measured as in the previous model. COUNTRY proxies for two different capital market development levels which also represent opposite institutional settings (the UK being a large developed capital market and Spain being a less developed one) (Leuz et al. 2003). Companies with bad news have fewer incentives to disclose quickly but are also more likely to be subject to litigation which may lead them to pre-empt their bad news (Healy and Palepu 2001; Skinner 1994, 1997). This effect is captured by the dummy variable PERFORMANCE. Additionally, we consider Investor Relations Department (IRD) as a dummy variable which takes the value of 1 if the company has an IRD or investor relations officer (IRO). To measure this we first checked all company websites to determine the existence of an investor relations function. Secondly, ARPRs themselves include information about the person, department or external company (company communications) that has issued the company ARPR. Most ARPRs are signed either by a public relations company or by the financial manager, chief executive, etc. Thirdly, when there was not enough data available to the researchers to determine the existence of an IRD or IRO, one of the authors contacted the company to request this information. When the firm has an IRD and/or an IRO exclusively dedicated to public relations functions, the variable gets a value of 1, and 0 otherwise. This approach is similar to that in Marston (1996) and Marston and Straker (2001). We include SIZE and INDUSTRY as control variables. SIZE may proxy for different effects. Larger companies have higher agency costs and also proxy for a richer information environment (Jeong 2009). SIZE and INDUSTRY are measured as in the previous model.

4.5 Statistical Analysis

Our analysis proceeds in two stages. We first explore company growth opportunities affecting the release of an ARPR. The dependent variable is dichotomous (issuers/ non-issuers of ARPRs) and we perform logistic regression. The basic logistic regression model (1) that examines empirically the relationship between the decision to issue an ARPR and the explanatory variables is the following:

$$\log(p/1-p) = \alpha_0 + \alpha_1 \, \text{GROWTH} + \alpha_2 \, \text{GROWTH\_FU}$$
$$+ \alpha_3 \, \text{COUNTRY} + \alpha_4 \, \text{PERFORMANCE} + \alpha_5 \, \text{SIZE} \qquad (1)$$
$$+ \alpha_6 \, \text{OPERA\_PERF} + \alpha_7 \, \text{LEVERAGE} + \alpha_8 \, \text{INDUSTRY}$$

where GROWTH is market-to-book ratio measured as market value scaled by total equity in year $t - 1$. As well as the main variable, we include a number of control variables. GROWTH_FU is the market-to-book ratio measured as market value scaled by total equity in year t. COUNTRY is a dummy variable that takes the value of 1 for UK and 0 for Spain. PERFORMANCE is 1 (Good news companies) when net profit for the current year exceeds the firm's net profit for the prior year and 0 (Bad news companies) when net profit for the current year does not exceed the net profit for the prior year. SIZE is the natural logarithm of the company market capitalisation. OPERA_PROF is operating profit measured by Worldscope item WC01250 and it represents the difference between sales and total operating expenses. The measure excludes operating and non-operating exceptional items. LEVERAGE is the leverage ratio measured as total debt to total asset Worldscope item WC08236. INDUSTRY is a categorical variable with four levels as follows, 1 = consumer and capital intermediate goods, 2 = construction, 3 = financial services.

Secondly, we investigate the effect of the timing of disclosure, performing survival analysis regression. We add a number of interactions to analyze in more detail the effect of the existence of an IRD and company performance on the timing of ARPRs. The full model (2) is as follows.

$$\text{Log LAG} = \alpha_0 + \alpha_1 \, \text{COUNTRY} + \alpha_2 \, \text{IRD}$$
$$+ \alpha_3 \text{PERFORMANCE} + \alpha_4 \, \text{IRD*COUNTRY}$$
$$+ \alpha_5 \, \text{PERFORMANCE*COUNTRY} + \alpha_6 \, \text{SIZE} + \alpha_7 \, \text{INDUSTRY}$$
$$\qquad (2)$$

where IRD is a dummy variable which takes the value of 1 if the company has an investor relations department and 0 if otherwise. The remaining variables are measured as in model (1).

5 Results

5.1 Voluntary Disclosure of Press Releases

5.1.1 Descriptive Analysis

Table 1 provides descriptive statistics for the independent variables included in the study. Panel A shows the results for the Spanish sample and Panel B for the UK sample. In Panel C we report the descriptive statistics for the entire sample. Table 2 shows the Pearson correlations for the independent variables (non-tabulated results for Spearman correlations are similar). In general, UK companies seem to demonstrate worse performance (PERFORMANCE) than Spanish ones as

Table 1 Sample descriptive statistics

Variable	N	Mean	Median	Skewness	SD	Minimum	Maximum
Panel A: Spanish sample							
GROWTH	112	0.00	0.00	4.60	0.00	−0.04	0.07
GROWTH_FU	119	0.00	0.00	7.66	0.00	0.00	0.06
PERFORMANCE	122	0.72	1.00	−1.04	0.44	0.00	1.00
SIZE	120	5.97	6.06	0.26	2.01	2.02	11.24
OPERA_PROF	120	230,743.61	27,124.00	4.65	737,616.34	−698,809.00	4,924,000.00
LEVERAGE	119	25.70	25.89	0.41	17.05	0.00	78.82
INDUSTRY	123	2.50	3.00	−0.04	1.32	1.00	4.00
Panel B: UK sample							
GROWTH	109	0.00	0.00	5.63	0.01	−0.01	0.12
GROWTH_FU	121	0.00	0.00	8.83	0.01	−0.00	0.17
PERFORMANCE	119	0.57	1.00	−0.32	0.49	0.00	1.00
SIZE	122	6.16	6.14	0.20	2.35	−0.27	12.43
OPERA_PROF	120	495,494.33	36,750.00	4.46	1,445,233.94	−244,391.00	10,406,820.00
LEVERAGE	119	21.80	19.63	1.23	17.33	0.00	92.42
INDUSTRY	123	2.48	3.00	−0.01	1.32	1.00	4.00
Panel C: Full sample							
GROWTH	240	0.00	0.00	6.27	0.01	−0.04	25,341,460.00
GROWTH_FU	240	0.00	0.00	10.98	0.01	−0.00	0.17
PERFORMANCE	241	0.65	1.00	−0.065	0.47	0.00	1.00
SIZE	242	6.07	6.09	0.24	2.18	−0.27	0.12
OPERA_PROF	240	363,118.97	31,104.50	5.14	1,152,596.26	−698,809.00	10,406,820.00
LEVERAGE	238	23.75	23.50	0.80	17.26	0.00	92.42
INDUSTRY	246	2.49	3.00	−0.02	1.32	1.00	4.00

evidenced by the negative correlation between the variables. However, the positive correlation between COUNTRY and GROWTH indicates that UK companies have higher levels of growth than their Spanish counterparts. Moreover, larger companies seem also to have higher growth and higher operating profits. To ensure that we do not have multicollinearity problems, we calculate variance inflation factors (VIF) for all variables in our models. VIF values over 10 indicate potential multicollinearity problems. The VIF values for all variables are close to one. The highest VIF in our models is 1.84 for SIZE which is a good value to discard multicollinearity (Allison 1999).

5.1.2 Multivariate Analysis

The primary results of the logistic regression are reported in Table 3. The results are presented in two columns, the first of which relates to Model 1 (does include industry) and the second to Model 1a (does not include industry). The results show that GROWTH is negatively associated with disclosure. This suggests that companies with higher potential for growth are less likely to promote this potential and allow competitors to get this positive signal. This is consistent with hypothesis 1. As in prior research (Guillamón-Saorín and Sousa 2010), we observe a significant positive association between the decision to issue an ARPR and COUNTRY. This indicates that UK companies are more likely to issue an ARPR than are Spanish ones. Moreover, the effect of company performance (whether the company has good or bad news to report) is also positively associated with voluntary disclosure of ARPRs, indicating that companies with better news to report are more likely to do so by issuing an ARPR. Our control variables are associated with disclosure and show the expected direction. Size is, as expected, positively associated with disclosure of an ARPR. As in previous studies (Schleicher and Walker 2010), operating profit is also included to control for the persistence of earnings. As expected, the relationship is negative and significant. Leverage is negatively associated with disclosure as in prior literature (Eng and Mak 2003).

We perform the Hosmer–Lemeshow test of goodness-of-fit (Hosmer and Lemeshow 1989), and their results show that the models fit the data well.

5.2 Timing of Disclosure

For the ARPRs included in this study, the mean of the number of days between the year-end and disclosure of an ARPR is 59 days, with a range that varies between a minimum of 3 days and a maximum of 145 days. Therefore, ARPRs can be considered timely disclosures. Moreover, the mean number of days between the year end and the disclosure of the ARPR by country is 50 days for Spanish companies and 66 for the UK ones. As in prior literature we perform survival analysis (Audretsch and Lehmann 2005; Jain and Martin 2005). This analysis investigates at which point in time the subjects were affected by the event of interest (Allison 2000; SAS Institute 2004) and it is operationalized by the Cox Proportional Hazard model. The results of the regression applying the Cox Proportional Hazard model are presented in Table 4. Since the dependent variable is the log of hazard,

Table 2 Bivariate Pearson correlations for independent variables

	1	2	3	4	5	6	7
1 GROWTH							
2 GROWTH_FU	0.07[b]						
3 COUNTRY	0.08[b]	0.06					
4 PERFORMANCE	−0.08	−0.03[a]	−0.15[a]				
5 SIZE	0.26[b]	−0.00[a]	0.04	0.11			
6 OPERA_PROF	0.04	−0.02	0.11	0.13[a]	0.58[b]		
7 LEVERAGE	−0.15[a]	−0.02	−0.11	0.01	0.10	0.10	
8 INDUSTRY	0.19[b]	−0.01	−0.00	0.07	0.39[b]	0.18[b]	0.19[b]

$N = 246$ companies. Number of cases varied depending on availability of data in Datastream on each variable

GROWTH is market to book ratio measured as market value scaled by total equity in year t − 1. *GROWTH_FU* is market to book ratio measured as market value scaled by total equity in year t. *COUNTRY* is 1 for UK and 0 for Spain. *PERFORMANCE* is 1 (Good news companies) when net profit for the current year exceeds the firm's net for the prior year and 0 (Bad news companies) when net profit for the current year does not exceed the net profit for the prior year. *SIZE* is the natural logarithm of the company market capitalisation. *OPERA_PROF* is operating profit measured by Worldscope item WC01250 and it represents the difference between sales and total operating expenses. *LEVERAGE* is the leverage ratio measured as total debt to total asset Worldscope item WC08236. *INDUSTRY* is a categorical variable with the following levels: 1 = consumer and capital intermediate goods, 2 = construction, 3 = financial services

[a] Significant at 0.05

[b] Significant at < 0.01

negative coefficients indicate that the lag period is longer. One of the main assumptions of the Cox Proportional Hazard model is proportionality. We verify that our model satisfies this assumption by including time-dependent covariates in the model. Time-dependent covariates are interactions of the predictors with time. In particular, we choose to use the interactions of our variables with log (LAG) because this is the most common function used. All our time-dependent covariates are insignificant, which means that there is no violation of the proportionality assumption. Furthermore, we check the proportionality of all the categorical predictors using the Kaplan–Meier curves.

Our main analysis is included in Table 4. The results indicate that UK companies delay the release of the ARPR longer than the Spanish ones, which contradicts our hypothesis (H2). Contrary to expectations, companies with an IRD delay the ARPR more than those that do not have one (H3). We engage in a deeper investigation of this relationship by analyzing the effect of the country as a moderating factor (H3a). Model 2a provides an analysis of the effect of the existence of an IRD on the decision to issue an ARPR for each country. The estimated coefficient on the interactive term IRD*COUNTRY (H3a) is positive and a significant estimate = 0.74, $p = 0.03$). This indicates that the delay due to IRD is shorter for UK companies than for Spanish ones. Corporate performance does not seem to affect the timing of the ARPR (H4). Results (Model 2b Table 4) support prior literature by showing that companies performing better delay less than companies

Table 3 Results for the logistic regression of ARPR disclosure

Model 1: $\log(p/1 - p) = \alpha_0 + \alpha_1 \text{ GROWTH} + \alpha_2 \text{ GROWTH\_FU} + \alpha_3 \text{ COUNTRY} + \alpha_4 \text{ PERFORMANCE} + \alpha_5 \text{ SIZE} + \alpha_6 \text{ OPERA\_PROF} + \alpha_7 \text{ LEVERAGE} + \alpha_8 \text{ INDUSTRY}$

Variables	Hyp. (exp. sig.)	Model 1 Coef. (p-val)	Model 1a Coef. (p-val)
INTERCEPT		−2.37	−1.76
		(0.00)	(0.00)
GROWTH	H1 (−)	−36.89	−30.47
		(0.01)	(0.03)
GROWTH_FU		116.9	123.1
		(0.22)	(0.18)
COUNTRY		1.13	1.10
		(0.00)	(0.00)
PERFORMANCE		0.40	0.31
		(0.04)	(0.10)
SIZE		0.57	0.50
		(0.00)	(0.00)
OPERA_PROF		−7.47	−6.84
		(0.00)	(0.00)
LEVERAGE		−0.00	−0.00
		(0.70)	(0.79)
INDUSTRY		Yes	No
Model χ^2 [a]		66.73	63.24
		(0.00)	(0.00)
Concordant percent		82.6	81.8

Table 3 continued

Model 1: $\log(p/1 - p) = \alpha_0 + \alpha_1$ GROWTH $+ \alpha_2$ GROWTH_FU $+ \alpha_3$ COUNTRY $+ \alpha_4$ PERFORMANCE $+ \alpha_5$ SIZE $+ \alpha_6$ OPERA_PROF $+ \alpha_7$ LEVERAGE $+ \alpha_8$ INDUSTRY

Variables	Hyp. (exp. sig.)	Model 1 Coef. (p-val)	Model 1a Coef. (p-val)
H–L test[b]		5.31 NS	5.35 NS
Sample size		216	216

GROWTH is market to book ratio measured as market value scaled by total equity in year t. *GROWTH_FU* is market to book ratio measured as market value scaled by total equity in year t − 1. *GROWTH_FU* is market to book ratio measured as market value scaled by total equity in year t. *COUNTRY* is 1 for UK and 0 for Spain. *PERFORMANCE* is 1 (Good news companies) when net profit for the current year exceeds the firm's net for the prior year and 0 (Bad news companies) when net profit for the current year does not exceed the net profit for the prior year. *SIZE* is the natural logarithm of the company market capitalisation. *OPERA_PROF* is operating profit measured by Worldscope item WC01250 and it represents the difference between sales and total operating expenses. *LEVERAGE* is the leverage ratio measured as total debt to total asset Worldscope item WC08236. *INDUSTRY* is a categorical variable with the following levels: 1 = consumer and capital intermediate goods, 2 = construction, 3 = financial services

[a] The model χ^2 is the difference between −2 log likelihood for the model with only a constant and likelihood for the current model. The model χ^2 measures the overall statistical significance of the model. The model tests the probability that the company will issue an ARPR. The dependent variable is 1 if the company issues an ARPR and 0 otherwise. The tests are modelled for the lower level of the independent variables

[b] The Hosmer–Lemeshow test of goodness-of-fit tests the null hypothesis that there is no difference between the observed and predicted values of the response variable. In this case, the test is not significant (NS) and therefore we fail to reject the null hypothesis that there is no difference between the observed and the predicted values. Thus, it can be concluded that the model is a good-fitting one

performing poorly (estimate $= 0.86$, $p = 0.01$). In our case, this effect is driven by country as the variable PERFORMANCE in Table 4 only becomes significant when the interaction term (PERFORMANCE*COUNTRY) is included in the model (Model 2b). This second interaction term of the analysis, PERFOR-MANCE*COUNTRY (H4a), is negative and significant (estimate $= -1.05$, $p = 0.00$) indicating that the country moderates the effect of corporate performance on the timing of the ARPR. According to this, UK companies with better performance delay longer the issuance of the ARPR. This is consistent with the theory advanced earlier that companies facing higher litigation risks are more likely to pre-empt bad news by issuing a press release early (Begley and Fischer 1998).

Regarding the interactions, the addition of the two interactions between voluntary disclosure lag and the factors included in the study (Models 2, 2a and 2b) results in an increase in the models Likelihood Ratio (χ^2 from 34.80 in Model 2 to 46.58 in Model 2b).

5.3 Additional Tests on the Decision to Issue an ARPR

We test for a number of factors which have been included in prior studies to control for their effect on disclosure.

5.3.1 Control Variables Affecting Disclosure

Analysts Following and Acquisitions As in prior work, we find a positive association between the disclosure of a press release and the number of analysts following the company (Guillamón-Saorín and Sousa 2010). Moreover, no effect on management decision to disclose these releases is found for companies facing acquisitions.

Company Risk As in prior literature (Bamber and Cheon 1998) we check whether companies facing more risk would have different disclosure practices. We include a proxy for risk (BETA) which shows the relationship between the volatility of the stock and the volatility of the market. This is measured by Worldscope item WC09802. Results not tabulated remain unchanged for the rest of the factors and BETA does not show any statistical association with the decision to issue an ARPR.

Capital Requirement A well-known measure of entry barrier used in the industrial organization literature is capital requirement (Clarkson et al. 1994). We perform an additional test to check the effect of this factor in our analysis. As in prior literature the variable is measured as gross property, plant and equipment expressed as a percentage of total asset (Clarkson et al. 1994). Property, plant and equipment represent tangible assets with an expected useful life of over 1 year which are expected to be used to produce goods for sale or for distribution services (Worldscope item WC02301). Results are not significant.

5.3.2 Sensitivity Analyses

Considering that our dependent variable (LAG), which measures the number of days between the year-end and the date of the ARPR, is left truncated, we rerun models (2) (2a) and (2b) using a limited dependent variables approach as a sensitivity test

Table 4 Results for the analysis of timing of ARPRs disclosure

Model 2: Log LAG $= \alpha_0 + \alpha_1$ COUNTRY $+ \alpha_2$ IRD $+ \alpha_3$ PERFORMANCE $+ \alpha_4$ SIZE $+ \alpha_5$ INDUSTRY
Model 2a: Log LAG $= \alpha_0 + \alpha_1$ COUNTRY $+ \alpha_2$ IRD $+ \alpha_3$ PERFORMANCE $+ \alpha_4$ IRD*COUNTRY $+ \alpha_5$ SIZE $+ \alpha_6$ INDUSTRY
Model 2b: Log LAG $= \alpha_0 + \alpha_1$ COUNTRY $+ \alpha_2$ IRD $+ \alpha_3$ PERFORMANCE $+ \alpha_4$ IRD*COUNTRY $+ \alpha_5$ PERFORMANCE*COUNTRY $+ \alpha_6$ SIZE $+ \alpha_7$ INDUSTRY

Variables	Hyp. (exp. sig.)	Model 2 Coef. Odds ratio (p-val)	Model 2a Coef. Odds ratio (p-val)	Model 2b Coef. Odds ratio (p-val)
COUNTRY	H2 (+)	−0.59	−1.09	−0.58
		1.06	0.33	0.55
		(0.00)	(0.00)	(0.01)
IRD	H3 (+)	−0.41	−0.91	−1.22
		0.66	0.40	0.29
		(0.02)	(0.00)	(0.00)
PERFORMANCE	H4 (+)	0.06	0.13	0.86
		1.06	1.50	2.38
		(0.72)	(0.44)	(0.01)
IRD*COUNTRY	H3a (+)		0.74	1.06
			2.11	2.91
			(0.03)	(0.00)
PERFORMANCE*COUNTRY	H4a (−)			−1.05
				0.34
				(0.00)
SIZE		0.14	0.15	0.17
		1.06	1.17	1.18
		(0.00)	(0.00)	(0.00)

Table 4 continued

Model 2: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 SIZE + α_5 INDUSTRYModel 2a: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 IRD*COUNTRY + α_5 SIZE + α_6 INDUSTRYModel 2b: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 IRD*COUNTRY + α_5 PERFORMANCE*COUNTRY + α_6 SIZE + α_7 INDUSTRY

Variables	Hyp. (exp. sig.)	Model 2 Coef. Odds ratio (p-val)	Model 2a Coef. Odds ratio (p-val)	Model 2b Coef. Odds ratio (p-val)
INDUSTRY				
IND1		−0.19 0.82 (0.31)	−0.13 0.87 (0.52)	0.13 0.87 (0.50)
IND2		0.09 1.10 (0.73)	0.21 0.90 (0.47)	0.26 1.30 (0.37)
IND3		−0.10 0.90 (0.73)	−0.10 2.11 (0.72)	0.14 0.86 (0.62)
−2 Log L		1,382.60	1,382.60	1,382.60
LR		34.80 (0.00)	39.01 (0.00)	46.58 (0.00)
Sample size		246	246	246

The Cox Proportional Hazard model tests the association between LAG (number of days between the year-end and the date of the ARPR) and the independent variables. The dependent variable is the log of hazard (log LAG). Negative coefficients indicate a longer lag period

COUNTRY is 1 for UK and 0 for Spain. *IRD* is 1 when the company has an investor relations department or investor relations officer, and 0 otherwise. *PERFORMANCE* is 1 (Good news companies) when net profit for the current year exceeds the firm's net for the prior year and 0 (Bad news companies) when net profit for the current year does not exceed the net profit for the prior year. *SIZE* is the natural logarithm of the company market capitalisation. *INDUSTRY* is a categorical variable with the following levels: IND1 = consumer and capital intermediate goods, IND2 = construction, IND3 = financial services

(Maddala 1991; SAS Institute 2004; Schleicher and Walker 2010; Tobin 1958). In particular, we use Tobit regression to run the model. The Tobit model, also called a censored regression model, is designed to estimate linear relationships between variables when there is either left- or right-censoring in the dependent variable. This is because our sample contained no data with values less than 1 for the dependent variable. Results of this alternative specification are presented in Table 5. Results are consistent with the main results shown in Table 4. The outputs contain an estimate of the standard error of SIGMA. That SIGMA is statistically significant means that the coefficient is statistically significantly different from 0.

In addition to the main analysis carried out using survival analysis, we run a regression using the Heckman method (Heckman 1979) which overcomes self-selection bias by controlling for potential endogeneity issues. Endogeneity might exist in the decision concerning the date of disclosure of the ARPR in relation to whether or not to issue the ARPR at all. We run models (1) and (2) as a system of equations. Then, Eq. (2) is used to calculate the inverse Mill's ratio which is included as an additional regressor (IMR) in model (1). This method corrects for potential sample selection bias. The results are reported in Table 6. In all three regressions, IMR is not significant. The other results are mostly consistent with what was previously reported. Specifically, COUNTRY and IRD are positive and significantly associated with the delay of the ARPR. The interactions also show the same sign and significant association. This means that our results do not suffer from self-selection biases.

5.3.3 Stability of Results over Time

In our tests, we use a sample of firms from 2000, immediately before the spate of financial scandals at the beginning of this century. A potential concern about the results is that they may not be stable over time and might have been influenced by lenient regulation before the financial scandals took place. As a sensitivity analysis we run all the main tests using data obtained for year 2005, before the financial crisis and after the financial scandals. The results obtained from that sample are mostly consistent with those reported here and confirm that COUNTRY and IRD affect companies' delay in issuing an ARPR. Moreover, results for 2005 also support the moderating effect of COUNTRY when looking at the association between IRD and the timing of ARPRs. UK companies with an IRD issue the ARPR earlier. The only difference in the results for 2005 is related to the interaction between PERFORMANCE and COUNTRY. For the 2005 data, this interaction is not significant. This confirmatory evidence using data from a different year strongly supports the validity of the reported evidence and allows us to generalize the results.

6 Discussion and Conclusion

Our work produces interesting outputs which help in understanding voluntary disclosure behavior in an international context. Consistent with agency theory, the cross-national setting investigated in this study confirms the differences in

disclosure practices across countries (Gray 1988). Agency problems differ greatly across countries in part because of the different legal systems in place (La Porta et al. 2000). Disclosure timing is clearly affected by national influences. Interestingly, our work points to the hypothesis of a moderating effect of country on the timing of disclosure.

In addition to the national influence, in general, the corporate optimal disclosure strategy is determined by the cost and benefits of disclosure. An assessment of these costs and benefits allows managers to decide on the nature, content and timing of disclosures. We attempt to scrutinize the factors that affect management disclosure decisions. The characteristics of our study design provide us with a setting where we can test two management decisions: (1) Whether to issue or not to issue an ARPR, and (2) the timing of the ARPR, thereby giving a clearer picture of the corporate disclosure strategies in place.

Our research is innovative in that we investigate a corporate communication venue and determinants that have not been addressed in prior work. As suggested in previous studies, we investigate ARPRs posted on the companies' websites (Lim et al. 2007). These venues are particularly interesting because they reach a wider audience (Bamber and Cheon 1998), enhance the visibility of the company (Bushee and Miller 2007), are more timely (Aerts and Cormier 2009), and therefore, have more capacity to change readers' impressions (Daft and Lengel 1986) than other more formal corporate disclosures such as annual reports. Thus, they present an appropriate tool and setting to investigate the incentives managers have to vary the timing of these disclosures and whether the timing choices are related to agency costs.

The first decision made by the manager is whether to issue an ARPR. We argue that this decision is associated with the level of proprietary costs faced by the company. For example, in a competitive global environment managers may think that the market is not informationally efficient and decide to avoid promoting growth opportunities, which could encourage competitors to join the market, through voluntary disclosure (Bamber and Cheon 1998; Clarkson et al. 1994; Durnev et al. 2009). Thus, management may decide not to release an ARPR. Our results show a negative association between the decision to issue an ARPR and our measure of proprietary information cost, thereby supporting our first hypothesis.

Companies' current disclosure practice may imply a commitment for future similar disclosures (Einhorn and Ziv 2008). Therefore, companies may not have the option of not disclosing. In this context, managing the timing of disclosure allows managers further discretion in their communication strategies. According to the literature on capital market and disclosure and consistent with agency theory, more liquid markets (i.e., the UK) would demand more timely information (Sengupta 2004). Our results show that the direction of the effect between timing and country is contrary to expectations. UK companies seem to have higher delay in issuing ARPRs than do Spanish ones. One possible explanation for this result is a substitutive effect of information timeliness to compensate the weak legal and institutional disclosure requirement with the aim of providing a better signal to market participants (Durnev et al. 2009). Management may use different reporting strategies as a signaling tool to influence the perceptions of investors (Fields et al.

2001). In this case, Spanish companies could be using disclosure timeliness to send a positive signal to potential investors.

The role of an IR function also helps to improve the quality of information flowing from the company to the market, which increases corporate visibility and improves market liquidity (Easley and O'Hara 2004). This IR function could be considered an information system which monitors management potential opportunistic behavior (Eisenhardt 1989). The relationship between the existence of an IRD and timing provides interesting insights not discussed previously in the literature. The direct effect is contrary to expectations with companies that have an IRD showing longer delay in the release of ARPRs. As mentioned above, managers may use different strategies to signal transparency and good disclosure practices to investors. Voluntary disclosure and timeliness usually signal informativeness but other elements such as the existence of an IRD, whose specific role is to maintain a good quality of disclosure, may send a strong signal to investors in relation to corporate information transparency (Ettredge et al. 2001, 2002; Marston and Straker 2001). Managers may consider the existence of an IRD as a substitute of timeliness. Thus, the existence of an IRD may reduce agency cost and timely disclosure would be less urgent for companies. This is evidenced when internal processes need to substitute external shortages in disclosure requirement such as in Spain. In this context, indicating transparency is the most important objective of voluntary disclosure and this is probably signalled by the presence of a corporate IR function.

The existence of moderating effects in this relationship is also observed in this case. The examination of the interaction between country and the existence of an IRD allows us to examine this relationship in more detail. We find that the country where the company operates plays an important role in helping to understand the relationship between the existence of an IRD and the timing of the disclosures. In particular, we argue that the different level of development of the IR function in Spain (less developed IR function) in relation to the UK (more developed IR function) (Dircom 2000, 2005) affects this association. The results show that the delay in releasing an ARPR after the year-end decreases for UK companies which have an IRD. This supports hypothesis H3a and is consistent with our expectations.

In general, companies operating in capital markets have incentives to disclose good news early to attract investment. We find that firms with bad news are less likely to voluntarily disclose information (Ajinkya et al. 2005), but contrary to expectations and to the evidence found in prior literature (Sengupta 2004), we do not find a direct strong association between company performance and timing. This could be due to the interplay of proprietary and agency costs. On the one hand, companies would have incentives to disclose quickly to increase transparency and reduce agency costs and on the other, the effect of proprietary costs may motivate management to withhold or delay information on good performance to protect its competitive advantage (Botosan and Stanford 2005; Harris 1998). Further, we argue that the timing of disclosure of good and bad news may be affected by the institutional context in which the company operates. Moreover, the litigation environment also affects the disclosure timing of good and bad news (Begley and Fischer 1998; Givoly and Palmon 1982; Kross 1981; Sengupta 2004). In particular, we find that UK companies which have a stronger presence of institutional

Table 5 Sensitivity checks of timing of ARPRs disclosure

Limited dependent variables (TOBIT)

Model 2: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 SIZE + α_5 INDUSTRY
Model 2a: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 IRD*COUNTRY + α_5 SIZE + α_6 INDUSTRY
Model 2b: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 IRD*COUNTRY + α_5 PERFORMANCE*COUNTRY + α_6 SIZE + α_7 INDUSTRY

Variables	Hyp. (exp. sig.)	Model 2 Coef. (p-val)	Model 2a Coef. (p-val)	Model 2b Coef. (p-val)
INTERCEPT		63.81	59.69	66.26
		(0.00)	(0.00)	(0.00)
COUNTRY	H2 (−)	13.94	25.48	17.60
		(0.00)	(0.00)	(0.00)
IRD	H3 (−)	8.95	19.56	20.36
		(0.00)	(0.00)	(0.00)
PERFORMANCE	H4 (−)	−0.26	−1.09	−9.00
		(0.92)	(0.71)	(0.08)
IRD*COUNTRY	H3a (−)		−17.16	−17.80
			(0.00)	(0.00)
PERFORMANCE*COUNTRY	H4a (−)			11.38
				(0.07)
SIGMA		17.60	17.22	17.06
		(0.00)	(0.00)	(0.00)
SIZE		−2.95	−3.21	−3.37
		(0.00)	(0.00)	(0.00)
INDUSTRY				

Table 5 continued

Limited dependent variables (TOBIT)

Model 2: Log LAG $= \alpha_0 + \alpha_1$ COUNTRY $+ \alpha_2$ IRD $+ \alpha_3$ PERFORMANCE $+ \alpha_4$ SIZE $+ \alpha_5$ INDUSTRYModel 2a: Log LAG $= \alpha_0 + \alpha_1$ COUNTRY $+ \alpha_2$ IRD $+ \alpha_3$ PERFORMANCE $+ \alpha_4$ IRD*COUNTRY $+ \alpha_5$ SIZE $+ \alpha_6$ INDUSTRYModel 2b: Log LAG $= \alpha_0 + \alpha_1$ COUNTRY $+ \alpha_2$ IRD $+ \alpha_3$ PERFORMANCE $+ \alpha_4$ IRD*COUNTRY $+ \alpha_5$ PERFORMANCE*COUNTRY $+ \alpha_6$ SIZE $+ \alpha_7$ INDUSTRY

Variables	Hyp. (exp. sig.)	Model 2 Coef. (p-val)	Model 2a Coef. (p-val)	Model 2b Coef. (p-val)
IND1		1.80	0.39	0.24
		(0.59)	(0.90)	(0.94)
IND2		−0.56	−1.95	−0.78
		(0.91)	(0.69)	(0.87)
IND3		2.64	2.42	2.76
		(0.61)	(0.63)	(0.58)
LL		−710.34	−706.48	−704.90
Sample size		246	246	246

The model tests the association between LAG (number of days between the year-end and the date of the ARPR) and the independent variables

COUNTRY is 1 for UK and 0 for Spain. *IRD* is 1 when the company has an investor relations department or investor relations officer, and 0 otherwise. *PERFORMANCE* is 1 (Good news companies) when net profit for the current year exceeds the firm's net for the prior year and 0 (Bad news companies) when net profit for the current year does not exceed the net profit for the prior year. *SIZE* is the natural logarithm of the company market capitalisation. *IMR* is the Inverse Mill's ratio obtained from a first stage regression where we model the decision to issue an ARPR. *INDUSTRY* is a categorical variable with the following levels: IND1 = consumer and capital intermediate goods, IND2 = construction, IND3 = financial services

Table 6 Sensitivity checks of timing of ARPRs disclosure

Control for self-selection problems

Model 2: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 SIZE + α_5 INDUSTRY
Model 2a: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 IRD*COUNTRY + α_5 SIZE + α_6 INDUSTRY
Model 2b: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 IRD*COUNTRY + α_5 PERFORMANCE*COUNTRY + α_6 SIZE + α_7 INDUSTRY

Variables	Hyp. (exp. sig.)	Model 2 Coef. (p-val)	Model 2a Coef. (p-val)	Model 2b Coef. (p-val)
INTERCEPT		44.73	42.89	51.48
		(0.00)	(0.00)	(0.00)
COUNTRY	H2 (−)	22.57	34.01	24.70
		(0.00)	(0.00)	(0.01)
IRD	H3 (−)	10.05	21.76	23.03
		(0.00)	(0.00)	(0.00)
PERFORMANCE	H4 (−)	0.68	−0.74	−9.55
		(0.83)	(0.82)	(0.12)
IRD*COUNTRY	H3a (−)		−19.41	−20.42
			(0.00)	(0.00)
PERFORMANCE*COUNTRY	H4a (+)			12.39
				(0.08)
IMR		21.94	18.48	16.80
		(0.23)	(0.24)	(0.25)
SIZE		−2.36	−3.19	−3.14
		(0.00)	(0.00)	(0.00)
INDUSTRY				

Table 6 continued

Control for self-selection problems

Model 2: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 SIZE + α_5 INDUSTRYModel 2a: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 IRD*COUNTRY + α_5 SIZE + α_6 INDUSTRYModel 2b: Log LAG = $\alpha_0 + \alpha_1$ COUNTRY + α_2 IRD + α_3 PERFORMANCE + α_4 IRD*COUNTRY + α_5 PERFORMANCE*COUNTRY + α_6 SIZE + α_7 INDUSTRY

Variables	Hyp. (exp. sig.)	Model 2 Coef. (p-val)	Model 2a Coef. (p-val)	Model 2b Coef. (p-val)
IND1		1.27	1.27	2.41
		(0.83)	(0.82)	(0.67)
IND2		3.50	5.03	5.50
		(0.55)	(0.38)	(0.33)
IND3		−1.28	0.74	1.02
		(0.73)	(0.84)	(0.78)
Adj. R^2		0.27	0.32	0.33
F value		7.39	7.91	7.53
Sample size		246	246	246

The model tests the association between LAG (number of days between the year-end and the date of the ARPR) and the independent variables

COUNTRY is 1 for UK and 0 for Spain. *IRD* is 1 when the company has an investor relations department or investor relations officer, and 0 otherwise. *PERFORMANCE* is 1 (Good news companies) when net profit for the current year exceeds the firm's net for the prior year and 0 (Bad news companies) when net profit for the current year does not exceed the net profit for the prior year. *SIZE* is the natural logarithm of the company market capitalisation. *IMR* is the Inverse Mill's ratio obtained from a first stage regression where we model the decision to issue an ARPR. *INDUSTRY* is a categorical variable with the following levels: IND1 = consumer and capital intermediate goods, IND2 = construction, IND3 = financial services

investors, lower ownership concentration and face higher litigation risk, disclose bad news faster than Spanish ones (La Porta et al. 1997, 1998; Leuz et al. 2003).

It is also interesting to note that our results indicate that large companies are more likely to disclose ARPR earlier than small ones. Large companies attract more scrutiny and have a higher number of investors who are likely to be concerned about receiving timely information from those firms in which they are investing (Sengupta 2004). This is also explained by agency theory. Large companies have higher agency costs (Jensen and Meckling 1976) and this leads them to implement more efficient information systems to reduce asymmetries with investors and other stockholders (Eisenhardt 1989).

6.1 Implications for Practice

6.1.1 Implications for Managers

Given the international dimension of capital markets activities, investors can no longer afford to remain ignorant about international disclosure practices. Cross-national differences seem to be key to the disclosure and the timing decision. Our results show that managers from different countries have different information disclosure incentives. Therefore, managers should be interested in our results because the diversity of international accounting and disclosure practices is a barrier that may affect the pricing of securities and the composition of international portfolios. In particular, if the timing of disclosure is different among countries, it is likely to be reflected in the investment decision-making process of investors. This may affect the efficiency of the financial markets and capital flows worldwide. Global financial markets require more comparable information and also similar reporting and disclosure processes. International players such as managers of multinationals (MNEs) might also be interested in these differences. In this case, managers might be inclined to focus on international reporting and disclosure, paying less attention to the national trends (Doh and Guay 2004; Kolk 2005; Young et al. 2004). However, managers should be aware of the differences among countries to face and design their disclosure strategies accordingly. For example, a MNE operating in different countries may need to be aware of the strategies followed by companies in weak legal systems, such as Spain, to signal transparency by using disclosure timeliness to overcome the weak legal environment inherent in the country or by using the IR function as a substitute of timeliness in other cases. If MNE's policies are not adapted to local practices this may lead to an inaccurate assessment of the company (Shao et al. 2010).

6.1.2 Implications for Regulators

Our research also has implications for regulators. For instance, standards-setting bodies should be interested in research attempting to explain corporate disclosure timing choices. Timing is an important dimension of disclosure which affects the usefulness of information reported (relevance) as well as the faithful representation of that information. This quality of information should be maximized as much as

possible according to the IASB. Policy-makers should be interested in the evidence explaining incentives in relation to the reporting process that leads to significant systematic delays in earnings announcements. A better understanding of this process would allow them to issue regulation aimed at closely monitoring this dimension of disclosure, which has the potential to influence investors and affect market efficiency.

6.1.3 Implications for Shareholders and Potential Shareholders

Shareholders and potential shareholders should also be aware of the disclosure timing strategies followed by firms in different countries and the fact that they may depend on the direction of the news to be announced. Investors should also be aware of the strategies used by managers to signal transparency in different countries and which may be driven by the level of legal and institutional development (i.e., signaling transparency through timeliness or the existence of an IR function). If shareholders and potential shareholders misinterpret these management disclosure strategies as a lack of transparency, this may lead to a decrease in the company valuation and probably to a less efficient investment decision. Regulators should, therefore, promote standardised disclosure practices in order to achieve complete disclosure comparability, which would facilitate investors' decision-making process resulting in more efficient investments.

6.2 Limitations and Future Research

Investigating the determinants of the timing of voluntary disclosure provides a limited view of the corporate disclosure strategy. Future research could investigate the association between the characteristics of the content of press release and timing. For example, the relationship between reliability, thematic manipulation, attributional bias or other strategies used by management to bias the content of ARPRs and timing could prove interesting. Using these strategies related to the content of ARPR, managers can create a positive image of the company through the press release despite the real financial performance (Brennan et al. 2009; Garcia Osma and Guillamón-Saorín 2011). Evidence resulting from this association would clarify further the association between timing and corporate performance found in this study.

Although we use cross-sectional analysis in this paper to eliminate the potential confounding effects of changes in reporting rules over time, the use of panel data to examine these relationships should be considered by future researchers.

In addition, the existing empirical and theoretical literature has tended to treat voluntary disclosures somewhat generically. For example, Francis et al. (2005) claim that voluntary disclosure practices seem to function independently of country-level. However, our results show clear differences in disclosure strategies across countries. It would seem desirable for future studies to recognize the importance of this refinement of the analysis of voluntary disclosure behavior. Moreover, future research could investigate whether country-level factors or firm-level factors matter more in defining firm disclosure. Further, the analysis of other countries would

enhance our understanding of management disclosure motivations in different institutional settings. For example, multi-country-studies might be able to separate formal effects such as the origin of law from informal cultural aspects related to disclosure practice.

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