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Brochet, Francois; Limbach, Peter; Bazhutov, Dmitry; Betzer, André; Doumet, Markus

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Where Does Investor Relations Matter the Most?

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F. Brochet • P. Limbach •
D. Bazhutov • A. Betzer •
M. Doumet

centre for financial research
cologne

Where Does Investor Relations Matter the Most?

Francois Brochet* - Boston University

Peter Limbach - University of Cologne and Centre for Financial Research (CFR)

Dmitry Bazhutov, André Betzer, and Markus Doumet - University of Wuppertal

ABSTRACT

Using a panel of survey-based annual investor relations (IR) rankings of European companies, we provide evidence suggesting that the marginal benefit of IR is greater in countries with capital markets that are less outside-shareholder oriented. For firms located in these countries, we find that IR quality is associated with significantly greater firm visibility, information assimilation, and valuation. The results hold for both the public and private functions of IR, and in terms of market reactions around conference presentations and analyst/investor days. Furthermore, using MiFID II as a shock to firms' information environment, we find a significantly incremental association between IR and information assimilation as well as cost of capital in those countries post 2017. Overall, the evidence suggests that IR is associated with greater marginal benefits in markets where demand for this type of shareholder communication has been historically lower.

Keywords: Investor Relations; Transparency; Ownership Concentration; Firm Visibility; Information Asymmetry; Cost of Capital

JEL Classifications: G14; M41

* Corresponding author – email inquiries at fbrochet@bu.edu. We appreciate comments from Gjergji Cici, Tami Dinh (discussant), Richard Frankel, Rucsandra Moldovan, Peter Wysocki, Aaron Yoon (discussant), seminar participants at Concordia University, the Centre for Financial Research in Cologne, and Washington University in Saint Louis, and conference participants at the American Accounting Association FARS Mid-Year Meeting in Seattle, ESMT Berlin Annual Accounting Conference, the European Accounting Association Annual Meeting in Milan, and the Swiss Accounting Research Alpine Conference in Champéry.

1. Introduction

In increasingly globalized capital markets, public companies must communicate effectively with a broadening set of investors and information intermediaries. That communication entails the timely dissemination and clarification of mandated and voluntary disclosures, the facilitation of access to management during conference calls, non-deal roadshows, or other private meetings, etc. All these tasks typically fall under the purview of the investor relations (IR) function.[1] Yet, our understanding of IR's contribution to capital allocation and firm value remains limited. Indeed, because of the multifaceted nature of IR, lack of data availability has limited archival research on the topic. Furthermore, while the literature has examined the emergence of global norms in terms of financial reporting and corporate disclosure (for reviews, see De George et al. 2016 and Leuz and Wysocki 2016), the evidence thus far on more broadly defined IR is based on single-country studies, mostly using U.S. data (e.g., Bushee and Miller 2012; Kirk and Vincent 2014; Chapman et al. 2019). Hence, whether the effectiveness and value of firms' IR varies across jurisdictions remains largely unaddressed, despite being a pressing issue for both firms and investors around the world (e.g., BNY Mellon 2017).

We build on the existing literature by innovating along two dimensions. First, we use a novel dataset of survey-based rankings of quoted companies by country-year to measure IR in a large panel. Second, our dataset includes firms from various European countries, which enables us to examine cross-country variation in IR. While European capital markets have converged to some extent in terms of capital market institutions, e.g., through the E.U.-wide adoption of IFRS and the Market Abuse Directive, significant differences remain across countries. The main research

[1] The U.K. IR Society defines investor relations as "the communication and insight between a company and the investment community. This process enables a full appreciation of the company's business activities, strategy and prospects and allows the market to make an informed judgment about the fair value and appropriate ownership of a company" (from IR Society website: http://irsociety.org.uk/about).

question we address is whether IR's association with firms' information environment and ultimately firm value differs between insider-oriented markets and more outsider-oriented ones, which have a longer history of capital market communication.[2]

Our main hypothesis speaks to the relative effect of IR in a fundamentally different capital market environment. Specifically, we expect firms with higher-quality IR to be able to more effectively differentiate themselves in historically less outsider-oriented capital markets, which have been tailored to a more concentrated ownership structure. Capital markets across Europe exhibit significant variation in minority investor protection, ownership concentration, and transparency (Leuz et al. 2003; La Porta et al. 1999 and 2006; Djankov et al. 2008). An institutional environment that is historically less geared towards minority shareholders (which, for brevity, we refer to as less outsider-oriented market) can leave opportunities for firms to signal their commitment to higher standards in terms of communication with investors (Doidge et al. 2007). This is especially true nowadays, since domestic and foreign institutional investors are likely to be the marginal capital provider even in those markets. Accordingly, we expect firms that are perceived as more effective in IR than their local peers to enjoy greater capital market benefits in countries with less outsider-oriented capital markets.

There is tension in this hypothesis, though. First, if ownership remains more concentrated in the hands of domestic shareholders, demand for IR could be structurally limited. Indeed, IR's primary target audience consists of sell-side analysts and institutional investors with minority stakes. Second, in the backdrop of convergence efforts in financial reporting standards and securities regulation in the E.U., large firms in countries with little IR history may have already

[2] For instance, the historically lower level of outside shareholder orientation in Germany - a prime example of a less mature, insider-oriented capital market - relative to the U.K. is exemplified by the fact that the U.K. IR society was formed in 1980, whereas the German equivalent (DIRK) was only founded in 1994.

caught up with best practice in IR (IR Magazine 2013). Accordingly, whether IR's association with better capital market outcomes varies across countries is an open empirical question.

To answer this question, we obtain annual survey-based within-country rankings of quoted companies from 13 European countries based on the perceived quality of their investor relations.[3] The surveys are run by Extel, and respondents include a large cross-section of buy-side and sell-side firms. The sample covers 4,638 firm-years (by 1,516 firms) over the fiscal years 2014-2018.

Empirically, we examine several country characteristics that capture capital markets' degree of outsider orientation. First, we measure ownership concentration at the country-level as a proxy for overall demand for IR. Second, following Brochet et al. (2016), we code the distance between English and the dominant language in each country, as cultural and language barriers can proxy for capital market frictions that IR can help overcome. Third, to account for the inherently multifaceted nature of cross-country variation in institutions, we follow Isidro et al. (2019) and identify three factors that explain most of the variation in markets' outsider orientation. Specifically, we consider (i) financial reporting quality, (ii) a factor that captures creditor and investor rights, securities regulation, capital market size, and legal origin, and (iii) another factor that loads primarily on the political process, financial and tax reporting system characteristics, and local demand for IR (domestic institutional ownership and number of analysts). Collectively, we refer to countries with high ownership concentration and language distance to English and low values of institutional factors from Isidro et al. (2019) as having less outsider-oriented markets.

[3] In robustness tests, we also use firms' IR scores (i.e., the percent of the votes they have received) instead of their rankings. Our results hold with this specification. Furthermore, while we measure IR quality based on investors' perceptions thereof, we also assume that IR quality reflects firms' investments in IR. That is, those firms that are more highly ranked by outsiders should invest relatively more than their peers in IR. To validate this assumption, we obtain data on IR budget, remuneration, and staff size for the larger German and U.K. firms in our sample. Using this data, we find a positive and significant association between IR rankings and (i) the number of IR employees in the firm, (ii) the total remuneration of IR employees, and (iii) the IR budget. This finding suggests that firms that invest more in IR, particularly in IR-related human capital, are better ranked.

We validate those country characteristics by confirming that they correlate very highly with IR maturity at the country-level, which we measure by the year in which the national IR society was founded.

Our main analysis consists of panel regressions of capital market variables on IR rankings and control variables. We interact IR rankings with the aforementioned country characteristics and test for the significance of those interaction effects, while controlling for country-fixed effects to absorb the effect of time-invariant country characteristics on our variables of interest. We also control for industry- and year fixed effects as well as for time-varying firm characteristics that are likely correlated with both IR and capital market outcomes.

First, we examine analyst following and institutional ownership, because one of IR's fundamental goals is to enhance firm visibility and attract and retain more institutional ownership (Bushee and Miller 2012). Consistently, we find a positive association between firms' IR rankings and both analyst following and institutional ownership (including foreign), which we collectively refer to as visibility. Furthermore, we find an incrementally positive association between IR rankings and visibility for firms located in countries with less outsider-oriented markets.

Next, we examine the association between IR and information assimilation (Chapman et al. 2019). We find a significantly negative association between IR rankings and both analyst forecast dispersion and error for the average firm in the sample. Furthermore, the incremental association between IR ranking and information assimilation is significantly negative for firms located in less outsider-oriented markets. Consistent with the analyst-based measures, we also find similar patterns with lower stock return volatility and illiquidity (according to Amihud 2002).

Lastly, we test whether IR is associated with better firm valuation across European markets. We find that firms with better IR rankings have significantly higher Tobin's Q and lower cost of

equity, estimated according to Claus and Thomas (2001). Furthermore, we find a significantly positive incremental association for firms located in countries with less outsider-oriented markets.

Collectively, the results indicate that i) European firms with higher IR rankings enjoy higher capital market visibility, greater information assimilation, higher valuation, and lower cost of equity capital, and ii) those associations are significantly stronger for firms headquartered in countries where the demand for IR has been historically lower.[4]

Next, we shed light on the mechanisms through which IR benefits European firms by disaggregating IR rankings into a 'public' component correlated with firm disclosure and a residual 'private' one (e.g., one-on-one meetings). We find both public and private IR to be associated with incremental capital market benefits in countries with less outsider-oriented markets. Furthermore, we examine market reactions around conferences and analyst/investor days. Those events are most likely to capture IR's role in facilitating access to management for capital market participants (Kirk and Markov 2016). We find significantly greater market-adjusted absolute three-day returns around conference presentations and analyst/investor days for firms with better IR, and again more so in countries with less outsider-oriented markets. Combined, these two tests indicate that our results are not solely driven by firms' voluntary disclosure, but also by their efforts to reach out to investors.

Lastly, we use the recent implementation of the Markets in Financial Instruments Directive (MiFID) II as a pan-European shock to firms' information environment. Recent studies document a loss of sell-side analyst coverage for European firms attributable to the unbundling of research

[4] In robustness tests, we find that the results hold when we measure capital market outcomes in the year *after* the IR survey is run, which mitigates concerns of reverse causality or simultaneity. Our results also hold when we use a two-country panel using data from 2006 to 2014 for German and U.K. firms. In that sample, which has a longer time series, Germany is the insider-oriented market, whereas the U.K. is the outsider-oriented market. We use entropy balancing to match firms across the two countries.

payments from brokerage fees as required by MiFID II (Fang et al. 2019). Firms with stronger IR should be better positioned to fill the post-MiFID II void, especially when the country-level information environment is weaker to begin with. Accordingly, we expect IR to be associated with even greater capital market benefits in countries with less outsider-oriented markets after MiFID II. We find results generally consistent with our expectations in terms of information assimilation and cost of capital, although not statistically significant with all proxies for outsider-oriented markets. Nevertheless, the results suggest that firms with better IR experience even greater capital market benefits than their country peers post-MiFID II in less outsider-oriented markets.

Our paper contributes to the literature on investor relations. While prior research focuses primarily on U.S. firms (e.g., Bushee and Miller 2012; Kirk and Vincent 2014; Chapman et al. 2019), we offer new insights by examining IR in a cross-country setting. By documenting that IR exhibits stronger associations with capital market benefits in countries with historically less outsider-oriented markets, we show that firms' IR efforts can pay off in a market where it is still a relatively newer practice. Furthermore, we find that both the public and private components of IR are associated with greater capital market benefits in those countries. While the international accounting literature has extensively examined disclosure and its capital market consequences, we know very little about the private aspect of IR outside of the U.S. (Bowen et al. 2018; Yoon 2019), let alone in Europe. Our results also complement the within-country time-series findings of Kirk and Vincent (2014), who find that U.S. firms with better IR successfully managed the transition from pre- to post-Regulation Fair Disclosure. In addition to our sample's cross-sectional variation, we provide time-series evidence around the passage of MiFID II. The fact that IR is associated even more strongly with capital market benefits in countries with historically less outsider-oriented

markets shows that Continental European firms can overcome a shock to their information environment through better IR.

We also highlight the complementarity of our study with two related working papers by Karolyi et al. (2019) and Reiter (2017). Karolyi et al. (2019) also examine IR in a cross-country setting. Their main finding is that better IR is associated with higher Tobin's Q, and this result is driven by firms that are not cross listed in the U.S. and those domiciled in countries with weaker shareholder protection and less disclosure. Our cross-country results are consistent with theirs, although we examine a broader spectrum of capital market outcomes, including ones more directly related to IR, such as analyst coverage and forecast properties. Furthermore, as we elaborate in the next section, their sample consists of a single year of self-reported survey data from corporate IR officers around the world. We further note that we address a specific and fundamentally different research question from Karolyi et al's. Indeed, we examine how the country-level environment shapes the extent to which firms with better IR stand out from their peers. Accordingly, the greater cross-sectional and time-series variation in our samples allows for more powerful statistical tests and the use of MiFID II as a shock to firms' information environment. Reiter (2017) examines investor communication by U.S. cross-listed firms and finds that those firms enjoy a valuation premium if they actively communicate with U.S. investors. Our results complement Reiter's because we focus on non-U.S. firms' domestic markets while controlling for cross-listing.

The rest of the paper is organized as follows. Section 2 reviews the institutional background and literature and develops the hypothesis. Section 3 describes the data and research design. Section 4 reports the empirical results for the main sample. Section 5 reports results from additional and robustness tests. Section 6 concludes.

2. Institutional Background, Literature, and Hypothesis

2.1. Institutional background and literature

IR is a multi-disciplinary function that is increasingly central to how public firms communicate with investors. IR has made its way onto the organizational chart of most public companies, especially among the largest ones (Chapman et al. 2019). The emergence of IR maps into a broader trend of globalization of capital markets. For a while, IR remained a primarily Anglo-Saxon concept, consistent with the greater development of equity markets in the U.S. and U.K. (Marston 2004).[5] The U.K. IR Society was founded in 1980, well before its equivalents in other European countries. This development reflects, to a significant extent, the demographics of institutional investors, which are predominantly from North America and the U.K. (Aggarwal et al. 2011) and are the primary consumers of IR.

It follows, then, that most of the academic literature on IR is based on U.S. firms. The evidence consistently supports the notion that IR has capital market benefits. That is, firms that invest more in IR enjoy higher valuations and lower information asymmetry. Bushee and Miller (2012) document those benefits among small and mid-cap firms, where IR investment is proxied by the hiring of an IR consultant. Kirk and Vincent (2014) use a different proxy, IR professionalization, which they measure by identifying IROs who are members of NIRI. More recently, Chapman et al. (2019) identify IROs based on their participation in earnings conference calls and document greater information assimilation in firms with IROs. Earlier work by Lang and Lundholm (1996) also indicates that analysts' ratings of firms' IR are positively associated with analyst following and the quality of analyst forecasts.[6]

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[5] Kay Bommer, managing director of the German IR association DIRK, is quoted by IR Magazine as saying "The US was doing IR decades before we knew it would make sense to talk to investors" (IR Magazine 2013).

[6] Bushee and Miller (2012) examine a sample of small and mid-cap firms that hire an external IR firm between 1998 and 2004. Kirk and Vincent (2014) identify firms with professional IR officers by looking at the membership directory

Evidence outside of the U.S. is sparse. Karolyi et al. (2019) use an IR index based on survey responses from IR officers (IROs) of international firms to estimate IR quality. Their study focuses on the determinants of IR rather than on capital market outcomes. Yet, consistent with the U.S. evidence, they find a positive association between IR quality and Tobin's Q. Their results for Tobin's Q are driven by firms that are not cross listed on U.S. exchanges and those domiciled in countries with weaker shareholder protection and less corporate disclosure. While our paper overlaps with Karolyi et al. (2019), significant differences remain. Their data consists of answers from IROs to the BNY Mellon 2012 Global Trends in Investor Relations Survey. Specifically, Karolyi et al. (2019) rely on self-reported measures of IR that come from IROs working for large, internationally operating corporations, whose IR needs are less likely to be representative of the average firm. With 773 responses from across 59 countries, mainly from the Americas and Asia Pacific, Karolyi et al. (2019) have a significant cross-section of data. Their detailed questionnaire allows for granular descriptive data on several IR facets, like Brown et al. (2019). However, in contrast to our IR coverage, Karolyi et al. (2019) lack time-series and within-country variation. Our data enables us to examine the incremental benefit of IR both in the cross-section and over time. Furthermore, instead of relying on a self-reported IR measure, we use a measure of IR quality that is based on an international survey among a large cross-section of buy-side and sell-side firms. This survey data is available for numerous European firms of different sizes that account for the bulk of their countries' market capitalizations.

There is a far more developed literature on cross-country variation in financial reporting and information asymmetry (see Leuz and Wysocki 2016 for a review). Of particular relevance to us is the contrast between 'shareholder' and 'stakeholder' governance models, which tend to

of NIRI, for the 1983-2009 period. Lang and Lundholm (1996) use ratings from the Financial Analysts Federation Corporate Information Committee from 1982 to 1988 and 1985 to 1989, respectively.

correspond to common and code law regimes, respectively (e.g., Tirole 2001; Denis and McConnell 2003). Firms around the world and within Europe significantly differ in terms of ownership structure (e.g., Djankov et al. 2008). These differences are also reflected in the levels of financial disclosure, minority investor protection, and regulatory oversight (Leuz et al. 2003; La Porta et al. 1999 and 2006; Spamann 2010).

2.2. Hypothesis development

Our main interest is in testing whether the capital market environment shapes the extent to which IR is associated with benefits to the firm in terms of greater valuation. The literature provides some theoretical guidance for our hypothesis. We assume that firms compete for capital domestically and globally. Firms domiciled in countries with historically low minority investor protection may attract outside capital by signaling their commitment to not expropriating minority shareholders. They can do so by voluntarily adopting governance and transparency mechanisms to overcome the weaknesses of their home-country institutions (Doidge et al. 2007). We consider IR to be a mechanism through which firms can commit to higher transparency.

Notwithstanding convergence efforts such as the E.U.-wide adoption of IFRS (Christensen et al. 2013), substantial variation remains in terms of capital market institutions within Europe. For example, while German firms that are part of the Deutsche Börse Prime Segment must hold at least one conference call per year as of 2003, Bassemir et al. (2013) estimate that 86% of them hold closed conference calls between 2004 and 2007, which stands in contrast to the contemporaneous adoption of open conference calls in the U.S. (Bushee et al. 2003), illustrating the lower demand for open calls in a market with high ownership concentration. Some of the capital market differences stem from deeply rooted cultural and linguistic characteristics such as the legal regime (Glaeser and Shleifer 2002). We expect the demand for IR to arise endogenously

over time as a function of those characteristics. For instance, we expect Anglo-Saxon markets to be more mature in terms of IR, as evidenced by the longer history of IR in the U.S. and U.K. relative to Continental European markets, and the generally more shareholder-oriented model of ownership and reporting adopted and disseminated by Anglo-Saxon investors (e.g., Yu and Wahid 2014; Fang et al. 2015). As a result, we posit that the IR market is more competitive in countries where IR has been more established. Hence, the marginal benefits to better IR should be relatively smaller. The idea is that if firms operate in markets where IR is less established as a profession and corporate function, and where voluntary disclosure or one-on-one meetings are less common due to more concentrated ownership, then firms that invest in IR can stand out more clearly. An increasing interest of foreign – typically Anglo-Saxon – investors reinforces this mechanism. Indeed, IR primarily targets institutional investors with minority stakes as well as sell-side analysts as conduit to further reach out to those investors (Brown et al. 2019). This objective of IR can result in increased demand for the firm's shares, especially from foreign and institutional investors.

However, for several reasons there is an interesting tension in our hypothesis, which may lead us to find opposite or no results. First, in more recent years, large Continental European firms have been perceived as having highly competitive IR. For example, among the Top 100 Best Companies for IR in the 2016 Pan-European Extel survey, five of the first ten were German. To the extent that this trend reflects a pervasive development of best practice among the larger German (European) firms, it could mean that the German (European) market has already reached the level of competitiveness of comparable Anglo-Saxon markets such as the U.K., at least among companies in the major stock indexes. However, it may also reflect these firms' knowledge of being able to stand out with better IR. In the broader context of corporate transparency, the adoption of IFRS has coincided with convergence efforts both at the regulatory level (e.g., with

the E.U. Market Abuse Directive) and the firm level (in terms of voluntary disclosure, see, e.g., Li and Yang 2016). As a result, Continental European capital markets are now more like Anglo-Saxon ones than at the beginning of the century. Second, it is possible that Continental European IR could face structural constraints in achieving the levels of capital market benefits that have been documented for the U.S. This could happen if the demand for IR remains lower in Europe. Domestic blockholders may obtain information through other channels and they can benefit from lack of IR through, e.g., weaker corporate governance. Furthermore, it is possible that effective IR requires a capital market environment that is more aligned with that of the U.S. After all, prior literature finds robust evidence of IR's capital market benefits within the U.S. Accordingly, IR could be a stronger differentiator when the baseline in terms of mandatory reporting and governance is already strong, as the results from Kirk and Vincent (2014) suggest when contrasting the U.S. before and after Reg FD. Altogether, because of this tension, we formulate our summary hypothesis in its null form:

H1: Investor relations exhibits the same association with firm visibility, information assimilation, and valuation irrespective of the country's capital market maturity.

3. Data and Research Design

3.1. Sample and IR variable

Our main sample consists of publicly listed firms from 13 European countries for which we obtain data on IR rankings from Extel WeConvene (formerly Extel).[7] IR rankings are available for the fiscal years 2014 to 2018. The sample consists of 4,638 firm-years. We retrieve accounting and stock price data for all firms from Thomson Reuters Worldscope and Datastream, respectively.

[7] Thomson Reuters sold Extel to WeConvene in 2014. London-based Extel has conducted surveys among investment professionals since 1974. For more information, see https://www.extelsurveys.com/about/.

Our main variable of interest, *IR ranking*, is a measure of investor relations quality based on surveys among buy-side and sell-side firms conducted annually by Extel WeConvene. Each year, Extel conducts the survey between February and May. Thousands of professionals from buy-side and sell-side institutions vote each year. Participants assess several aspects of a firm's quality of investor relations (on a 1-5 scale) for the last twelve months as of the survey date. They assess the overall quality of service, the website and webcasting, annual reports and formal disclosure, the business knowledge of the IR team, non-deal roadshows, one-on-one meetings, and the proactivity of senior executives. Votes from buy-side firms are weighted using European equity assets under management. Votes from sell-side firms are weighted using brokerage ratings from the previous year. Extel WeConvene ranks the relative IR quality of all firms in a country. The IR rankings we use are based on surveys conducted between 2015 and 2019, which refer to the fiscal years 2014 to 2018. In Appendix A, we provide country-by-country statistics on the average annual number of votes and the breakdown between buy-side and sell-side voters. The results indicate that there is a meaningful number of voters in all countries from both the sell-side and buy-side with, unsurprisingly, more voters in countries with larger markets.

Because the IR rankings provided by Extel WeConvene assign lower values to better IR quality, we multiply them by -1 to facilitate interpretation. That means higher values of the variable *IR ranking* correspond to better IR quality. We also standardize *IR ranking* to have a mean of 0 and a standard deviation of 1, such that its regression coefficients can be interpreted as the effect of a one standard deviation change in the quality of investor relations.

3.2. Research Design

To assess whether IR quality matters and where it matters most, we examine a set of corporate outcome variables using the following OLS regression model:

$$\textit{Capital market outcome} = \beta_1 * \textit{IR ranking} + \beta_2 * \textit{IR ranking} * \textit{Country characteristic} + \sum_k \beta_k * \textit{Control}_k + \textit{Fixed effects} \quad (1)$$

where fixed effects correspond to country, industry, and year fixed effects.

We begin by describing the different dependent variables, all of which are winsorized at the 1st and 99th percentiles. Following Bushee and Miller (2012) and Kirk and Vincent (2014), we first consider firm visibility. Firms engage in investor relations to attract and retain investors. As information intermediaries, sell-side analysts can be a conduit between IR officers and investors. Hence, it is also important for firms to achieve visibility through greater analyst coverage. In our empirical tests, *Analyst following* is the natural logarithm of the number of analysts that provide (fiscal year) EPS forecasts for a firm. We also examine institutional ownership measured by the percentage of shares outstanding held by institutional shareholders (*Institutional ownership_%*) and by the number of institutions holding the stock (*Institutional ownership_#*). Additionally, we examine the percentage of shares held by foreign institutional investors (*Foreign institutional ownership_%*) to test if better-ranked firms have a more international investor clientele.

Following Chapman et al. (2019), we next examine analyst forecasts. Besides visibility, IR's other goal is to ensure that the investment community understands the company's narrative. Analysts are an important channel through which the market forms expectations for future cash flows. IR officers routinely engage with analysts to ensure that their forecasts are not too far off management's own expectations, subject to applicable rules on private communication (NIRI 2014). Hence, effective IR is associated with lower analyst forecast errors and dispersion (Chapman et al. 2019). In our tests, *Forecast error* is the absolute difference between the actual EPS for the fiscal year and the mean analyst consensus for EPS forecast for the fiscal year divided by the stock price. *Forecast dispersion* is the natural logarithm of the standard deviation of analyst EPS forecasts for the fiscal year deflated by the stock price.

Next, following Chapman et al. (2019) and Reiter (2017), we examine stock price volatility and liquidity. Reducing stock volatility is among IR's main goals (Graham et al. 2005; Billings et al. 2015). We define *Stock volatility* as the standard deviation of daily stock returns, measured over the twelve months starting at the beginning of April of the previous year and ending at the end of March of the current year (Bushee and Noe 2000). As a proxy for liquidity, we use the illiquidity measure from Amihud (2002). *Amihud illiquidity* is calculated for the twelve months starting at the beginning of April of the previous year and ending at the end of March of the current year.

Finally, we test whether IR is associated with higher firm value (Bushee and Miller 2012; Reiter 2017), which we measure by *Tobin's Q*. We posit that the association between IR quality and firm value, if any, is most likely to come through a denominator effect, i.e., through the cost of equity capital, our other valuation-related variable of inquiry. Theory shows that information asymmetry affects the cost of capital in imperfect markets (Armstrong et al. 2011). Prior empirical evidence also links illiquidity to cost of capital (e.g., Brennan and Subramanyam 1996). Insofar as firms seek and manage to lower information asymmetry and illiquidity through their IR efforts, we would expect a negative association between IR and cost of capital. We use the methodology described in Claus and Thomas (2001), who employ a residual income model based on EPS estimates, to determine a firm's cost of equity capital. We also calculate the *Cost of capital* over the twelve months starting at the beginning of April of the previous year and ending at the end of March of the current year, consistent with Botosan and Plumlee (2002).

Consistent with prior research, we expect IR rankings to be (i) positively associated with analyst following and (foreign) institutional ownership, (ii) negatively associated with analyst forecast error and dispersion, (iii) negatively associated with volatility and illiquidity, (iv) positively associated with firm value and negatively associated with cost of equity capital. To test

our hypothesis, we examine the coefficient on the interaction term between *IR ranking* and an indicator for countries with less outsider-oriented markets (i.e., β_2). β_2 measures the incremental association between IR and capital market outcomes for firms in countries with less outsider-oriented markets relative to those in more outsider-oriented markets.

We use several proxies for capital market outsider orientation. First, for each sample year we compute the average of ownership concentration at the country-level as the mean equity stake held by the firms' largest investor. We expect countries with greater ownership concentration to have a lower demand for IR, as majority owners or blockholders can obtain information privately. Second, following Brochet et al. (2016), we use the distance between the dominant language in the country and English using the classification from Lewis (2009). Firms from countries that are linguistically more distant to English face both cultural and linguistic frictions vis-à-vis Anglo-Saxon investors (e.g., Lundholm et al. 2018) or generally when adopting IR, a historically Anglo-Saxon practice. Accordingly, we expect IR to be a greater differentiating factor when there is a greater language barrier to overcome. Third, we consider country-level financial reporting quality as a proxy for (outside) investors' reliance on public information. We test whether IR complements (negative β_2) or substitutes for (positive β_2) financial reporting quality at the country-level. We use data from Isidro et al. (2019) to measure financial reporting quality at the country level.[8] Lastly, we examine the four factors that Isidro et al. (2019) derive from 72 individual country characteristics that span economic, geopolitical, legal, regulatory, and sociological measures that are highly correlated with each other.

[8] Isidro et al. (2019) derive the financial reporting score from a factor analysis of six variables used in prior cross-country accounting literature: reporting transparency (Leuz et al. 2003; Leuz 2010), disclosure quality (Bushman et al. 2004), abnormal return, abnormal volume, return synchronicity (Nguyen and Truong 2013) and asymmetric timeliness (Bushman and Piotroski 2006). Collectively, the score captures the quality of reported accounting numbers and the extent to which investors react to those numbers in each country.

Throughout all of our analyses, we control for a firm's age (i.e., years since its IPO), its fraction of intangible to total assets, investments (i.e., capital expenditures and R&D expenditures relative to total assets), leverage (i.e., total debt to common equity in terms of book values), profitability and performance (i.e., ROE and annual buy-and-hold stock return), and size (i.e., the natural logarithm of the book value of total assets). Firms' IPO dates are collected from the Thomson Reuters Eikon database. We further include an indicator variable that equals one for firms with a U.S. cross-listing at one of the major U.S. stock exchanges NYSE, AMEX, and NASDAQ, as cross-listed firms may expand greater IR effort in their outreach to U.S. investors (Reiter 2017). Data on cross-listings is obtained from the Thomson Reuters Eikon and Datastream databases. We also account for differences in corporate ownership concentration by controlling for the ownership stake of a firm's largest investor, measured as the percent of shares outstanding held by that investor. We obtain ownership data from the Thomson Reuters Eikon database. Ownership is measured at the first tier and refers to the end of the first quarter of each year. Appendix B provides an overview of the main variables used in our study, including detailed variable definitions.

As we have a panel of up to five years of data, all regressions include year fixed effects to account for unobserved heterogeneity, which is constant across firms. Our regressions also include country and (Datastream ICB supersector) industry fixed effects to account for time-invariant country- and industry-specific heterogeneity. Except for ownership concentration, which varies over time, all other country characteristics are time-invariant and thus absorbed by country fixed effects.

4. Empirical Results

4.1. Summary statistics

We present summary statistics for our sample in Table 1. Panel A reports summary statistics for the firm-level variables. The statistics suggest that the average firm in the sample has significant levels and variation in the variables of interest (e.g., mean foreign institutional ownership of 24.55% with a standard deviation of 15.68%). Panel B reports summary statistics for country characteristics. Most European national IR societies were founded between the mid-1980s and the mid-1990s for the most part, with the U.K. being an exception on the one hand (1980) and Portugal on the other hand (2009). There is substantial variation in ownership concentration across the sample countries, from 16% in the U.K. to 45% in Portugal. Language distance to English varies between 2 for the West Germanic family (Dutch, German), 3 for the North Germanic family (Danish, Norwegian, Swedish), and 5 for the Romance languages (French, Italian, Portuguese, Spanish). The five factors (financial reporting and institutional factors 1 through 4) are from Isidro et al. (2019). As explained in Isidro et al. (2019), the four factors explain the bulk of the variation in financial reporting quality, subsuming the explanatory power of any individual country characteristic such as ownership concentration or language distance to English. Since our interest is to capture broad institutional characteristics that capture the expected demand for IR, we examine the explanatory power of each country characteristic for the foundation years of the national IR societies using univariate regressions. Panel C reports the results. While all variables are significantly associated with the founding of IR societies, their explanatory power varies greatly. Both financial reporting quality (R^2 of 65.7%) and Factor 2 (R^2 of 70.9%) are most highly correlated with IR society founding, followed by Factor 3, ownership concentration, and language distance to English. Broadly speaking, Factor 2 captures English common law, high shareholder

protection, and English proficiency. Factor 3 loads positively on variables such as the number of analysts, domestic institutional ownership, enforcement of accounting standards – hence also capturing an ecosystem consistent with robust capital markets. In contrast, Factors 1 and 4 exhibit a very low R^2 for IR society founding. Hence, our tests going forward will focus on the other variables.

4.2. Baseline results

We first examine whether European firms with better IR exhibit better capital market outcomes, irrespective of country differences. That is, we estimate Model (1) without interacting IR with country characteristics. Table 2 reports the results. In Panel A, we measure IR quality using standardized country-level rankings. Column headers display the dependent variables. In columns 1 to 4, the coefficient on *IR ranking* is positive and significant. Hence, on average, European firms that are ranked more highly than their country peers in IR have higher analyst coverage, greater institutional ownership, more institutional owners, and greater foreign institutional ownership. In columns 5 to 8, the coefficient on *IR ranking* is negative and significant. Hence, on average, European firms that are ranked more highly than their country peers in IR have lower analyst forecast dispersion and lower forecast error, lower stock return volatility, and higher stock liquidity. Lastly, the significantly positive (negative) coefficient on *IR ranking* in column 9 (10) indicates that better IR is associated with higher (lower) firm valuation (cost of equity capital). Overall, our results for Europe are consistent with prior studies using U.S. data.[9]

In Table 2, Panel B, we replace *IR ranking* with *IR score*, also standardized. The results are very similar to Panel A. That is, firms that have higher IR scores also have significantly greater analyst coverage, higher (foreign) institutional ownership, lower analyst forecast dispersion and

[9] The regressions using Tobin's Q and cost of equity capital as dependent variables omit the variable *Stock return* as a control. Results remain qualitatively similar when this variable is included (not tabulated).

error, lower stock volatility and illiquidity, higher Tobin's Q, and lower cost of capital. Going forward, we only tabulate results based on *IR ranking* for brevity.

As we measure IR and capital market outcomes simultaneously, one question is whether the association persists over a longer horizon. To address this issue, we re-run our main tests by measuring capital market outcomes in the year after the surveys are conducted. This research design allows us to check that the capital market benefits of IR are not purely driven by simultaneity and that they are not short-lived. Table 2, Panel C reports the results. They are qualitatively similar to the results in Panel A. All coefficients on *IR ranking* are statistically significant, except for institutional ownership (in percentage). Hence, the association between IR quality and capital market outcomes persists beyond the survey year. However, we caution against drawing causal inferences from the analysis of IR and capital market measures at the firm-level.

4.3. Hypothesis Test

Next, we test our hypothesis that IR's association with firm-level capital market outcomes varies with the country-level institutional environment by estimating Model (1).[10] Going forward, we use principal component analysis (PCA) to combine several capital market outcomes into summary measures. Specifically, *Visibility* is the first factor from a PCA of analyst following, institutional ownership (percentage and number) and foreign institutional ownership. *Assimilation* is the first factor from a PCA of analyst forecast dispersion, analyst forecast error, stock return volatility, and Amihud illiquidity. All factor loadings are positive (see details in Table A1 in Appendix C).

[10] In all of our tabulated results, we cluster standard errors at the firm-level. However, since our main variable of interest is an interaction term between a firm-level and a country-level variable, it is not clear which level of clustering is most appropriate. Untabulated results based on country-level clustering are qualitatively similar.

In Table 3, Panel A, we interact *IR ranking* with an indicator for whether country-year ownership concentration is above the sample median.[11] In column (1), the positive coefficient on *IR ranking* indicates that, in countries with more diffuse ownership, firms with better IR enjoy higher visibility. More importantly, the positive and significant coefficient on *IR ranking * High concentration* indicates that the association between IR and visibility is stronger in countries with relatively greater ownership concentration. Similarly, in columns (2) to (4), the coefficients on *IR ranking* and *IR ranking * High concentration* indicate that IR's association with information assimilation, firm value, and cost of equity capital holds in countries both below and above the sample median in terms of ownership concentration, but the association is incrementally significant in countries with high ownership concentration. That is, in those countries, a better within-country IR ranking is associated with even greater information assimilation, higher firm value, and lower cost of capital.

In Panel B, we interact *IR ranking* with an indicator for whether the distance between the dominant language in the country is above the sample median (i.e., for firms located in Denmark, France, Italy, Norway, Portugal, Spain, and Sweden). Directionally, the coefficients on *IR ranking * High language distance* are consistent with those in Panel A. That is, there is a significantly greater association between IR and firm visibility, information assimilation, and firm value (columns 1, 2, and 3), and a significantly more negative one between IR and cost of capital (column 4), for firms in countries that are linguistically more distant from English. These results suggest that better IR can help firms overcome cultural and language barriers to reach out to the investment community, mitigate information asymmetry, and enjoy higher valuation.

[11] For Austria, Italy, Portugal, and Spain the indicator for countries whose corporate ownership concentration is above the sample median equals one for all five sample years. The indicator takes the value of one at least in a single year for Belgium, France, Germany, and Norway. We choose a definition at the annual level for the ownership concentration indicator variable to obtain more variation.

In Panel C, we interact *IR ranking* with an indicator for whether country-level financial reporting quality is below (or equal to) the sample median (i.e., for firms located in Austria, Belgium, France, Germany, Italy, Portugal, and Spain). It so happens that we obtain the exact same results using an indicator for whether the second factor from Isidro et al. (2019) is below (or equal to) the sample median, since the correlation between financial reporting quality and the factor is 0.96 in our sample. Similar to Panels A and B, there is a significantly greater association between IR and firm visibility, information assimilation, and firm value (columns 1, 2, and 3), and a significantly more negative one between IR and cost of capital (column 4), for firms in countries that have lower financial reporting quality (and a lower second factor). These results suggest that firms can differentiate themselves more strongly from their domestic peers through IR in a relatively weaker country-level financial reporting environment.

Lastly, in Panel D, the coefficient on the interaction between *IR ranking* and the indicator for a lower third Isidro et al. 2019 factor is positive (negative) and significant when the dependent variables are visibility and Tobin's Q (information assimilation and cost of equity capital).[12]

Overall, based on the results in Table 3, we reject the null of H1. The association between IR quality and capital market outcomes is significantly greater in countries with less outsider-oriented markets. This evidence is consistent with our conjecture that firms can more effectively differentiate themselves from their domestic peers when IR is a newer practice in their country. Economically, the incremental association between IR and capital market outcomes appears to be

[12] We also examine the interaction between IR and the first and fourth factors from Isidro et al. (2019). The results based on the fourth factor are consistent with the ones based on Factor 2 and Factor 3, whereas they go the other way for the first factor. However, as we previously pointed out, neither factor explains IR maturity in Europe. Factor 1 includes aspects of economic welfare, creditor rights, and social attributes such as trust. Continental European countries rank higher than Anglo-Saxon ones on that factor, suggesting that it does not capture the capital market differences that we hypothesize matter for IR across countries. Factor 4 loads primarily on cultural long-term orientation and Buddhism, which are not relevant to our European sample.

quite significant. Indeed, the coefficients on the interaction terms between IR and the country characteristics are often larger than the main effects.

5. Additional tests

In this section, we perform additional analyses and robustness tests. First, we decompose IR into its public and private components. Second, we examine the information content of conference presentations and analyst/investor days. Third, we use the adoption of MiFID as a shock to the information environment of European firms. Fourth, we provide evidence from a two-country matched panel, which consists of a longer time series of data.

5.1. Public vs. private IR

To examine the mechanisms through which IR's association with capital market outcomes varies across countries, we devise a test to split IR rankings between their public (i.e., primarily disclosure quality) and private (such as one-on-one meeting) components. While prior literature has extensively examined the determinants and consequences of voluntary disclosures, we know far less about the effect of private interactions between firms and capital market participants, let alone across countries. Evidence suggests that private meetings are informative in the U.S. (Soltes 2014; Solomon and Soltes 2015; Bushee et al. 2018) and in China (Bowen et al. 2018). It remains an open question, though, whether European firms rely on private interactions with the same effectiveness and whether it depends on the country's institutional ecosystem. While all E.U. countries fall under the same regulatory framework in terms of selective disclosure (i.e., the Market Abuse Directive of 2003, and more recently the Market Abuse Regulation of 2016), differences in enforcement remain (Christensen et al. 2016).

To parse out public and private IR, we first regress *IR ranking* on three proxies for disclosure quality: *Conferences*, *Guidance*, and *U.S. cross-listing*, where *Conferences* is the number of investor conferences where the firm makes a presentation, and *Guidance* is the number of times the firm issues corporate guidance, both as recorded in Key Developments from Capital IQ. Prior research shows the importance of investor conferences as a setting for firms to interact with analysts and investors (e.g., Bushee et al. 2011, Green et al. 2014). Furthermore, conference participation is an integral part of IR (Reiter 2017). Cao et al. (2017) document cross-country differences in the effect of guidance on the cost of capital. Although far from comprehensive, the three variables proxy for disclosure quality and should capture, to a significant extent, the "public" component of IR. In Appendix C, Table A2, the results indicate that all three variables are positively and significantly associated with *IR ranking* and jointly explain 54.1% of its variation. We then label fitted values from the regression as *Public IR* and the residuals as *Private IR*.[13]

In a second stage, we then replace *IR ranking* with its two orthogonal components *Public IR* and *Private IR*. Table 4 reports the results, where we replicate the panel structure of Table 3. In all panels, the main result that emerges is that both the public and private components of IR are associated with higher visibility, information assimilation, and firm valuation in European firms. Furthermore, the effect is generally stronger in countries with relatively less outsider-oriented markets. One important takeaway is that our results are not merely picking up the effect of firm disclosure, as *Private IR* clearly plays a significant role in explaining our findings.

[13] To further validate those two IR proxies, we take advantage of more granular responses to Extel's surveys. Indeed, for a subset of German and U.K. firms, we obtain ratings on IROs' business knowledge, service, formal disclosure, and website quality, which we combine into a public rating, and proactivity of executives, site visits, and one-on-one meetings, which we combine into a private rating. For the 728 firm-years for which we have public ratings, we find a positive and significant correlation between those ratings and *Public IR* but not *Private IR*. For the 1,107 firm-years for which we have private ratings, we find a positive and significant correlation between those ratings and *Private IR* but not *Public IR*. Those correlations suggest that *Public IR* and *Private IR* capture distinct facets of IR. The untabulated results are available upon request.

5.2. Information Content of Investor Meetings

We further examine a plausible mechanism through which IR's stronger association with capital market outcomes in less outsider-oriented markets comes about by looking at the information content of conference presentations and analyst/investor days. We choose those events because the decision to participate in or organize them is a central role of firms' IR departments. Furthermore, their information content should be a relatively clean measure of IR's contribution to capital market outcomes. Like conference presentations, we obtain information on analyst/investor days from Capital IQ. Consistent with Kirk and Markov (2016), we compute market-adjusted 3-day absolute returns (MAR) around those events, net of the average of the same over the estimation window (-120, -30), and divided by the standard deviation over the estimation window. In our sample, the market return is based on the STOXX Europe 600 index. Some firms hold several events during the year, while others hold none. In those cases, we aggregate events by summing their three-day MAR at the firm-year level, and we set them to zero if none takes place, respectively. We then run Model (1) with this firm-year variable, which we denote *Investor meeting return*, as the dependent variable.

Table 5 reports the results. In all columns, the coefficient on *IR Ranking* is positive and significant. That is, firms with better IR in countries with outsider-oriented markets have more informative conference presentations and analyst/investor days, on average. In each column, we interact *IR Ranking* with a different indicator for less outsider-oriented markets. In columns 1, 3, and 4, the coefficient on the interaction term is positive and significant. That is, IR is associated with even greater information content around conference presentations and analyst/investor days in countries with greater ownership concentration, lower financial reporting quality, and lower second and third Isidro et al. (2019) factors – i.e., countries with less outsider-oriented markets.

The only exception is language distance with English, where the coefficient is negative and marginally significant. Overall, though, the results in Table 5 provide more targeted evidence on the informational role of IR across countries.

5.3. MiFID II

One of the most controversial changes that MiFID II brings about to the European Economic Area (EAA) is the unbundling of the costs of services that brokers provide such as investment research and corporate access from that of trade execution. Ostensibly, the regulation's goal is to increase transparency around the pricing of those services, which brokers previously bundled with trade execution under "soft dollars" arrangements. However, the passage of MiFID II has led to a decrease in analyst coverage and stock market liquidity for European firms (Fang et al. 2019). Furthermore, anecdotal evidence suggests that European IROs have faced difficulties in dealing with the consequences of the new regulation, arguing that "investors are harder to reach" (IR Magazine 2019). MiFID II affords us with a valuable setting because it is arguably a pan-European shock to firms' information environment, and thus indirectly to IR. Indeed, IR's main audience consists of sell-side analysts and institutional investors. By losing sell-side coverage and broker-sponsored face-to-face time with investors, firms need to step up their IR effort to fill the void created by MiFID II. For example, the average FTSE 350 firm held 328 investor meetings per year post MiFID II compared to 265 in 2017 (IR Magazine 2019). Furthermore, we argue that the effect should not be felt equally across countries. That is, countries with less outsider-oriented markets tend to have a less developed infrastructure (e.g., fewer analysts, investor conferences) to compensate for MiFID II's effect. Accordingly, we would expect IR to be even more crucial in those countries post-MiFID II. To test this conjecture, we augment Model (1) by adding an

indicator for *MiFID II* equal to one for fiscal year 2018, and zero otherwise.[14] Furthermore, we interact *MiFID II* with *IR ranking* and *IR ranking * Country characteristic*. If our expectation is true, we should observe a negative coefficient on *MiFID II * IR ranking * Country characteristic* for assimilation and cost of capital, and a positive one for Tobin's Q. We do not predict a positive coefficient for visibility, because MiFID II decreases analyst following (Fang et al. 2019) and we do not expect IR to overcome that effect in just one year.

Table 6 presents the results of our MiFID II tests. The panel structure is the same as in Tables 3 and 4. However, the regression results are based on the European sample excluding Switzerland, which is not a member of the E.U. and has not adopted any comparable regulation (see also Fang et al. 2019). We discuss the results column by column across all panels. First, in column 1 of all panels, the coefficient on *MiFID II * IR ranking * Country characteristic* is insignificant. That is, firms with better IR in countries with less developed and outsider-oriented capital markets do not gain more analyst coverage or institutional ownership post-MiFID II. However, in column 2, the coefficient on *MiFID II * IR ranking * Country characteristic* is negative and statistically significant ($p<0.05$) in all panels except panel B. That is, firms with better IR in countries with less developed and outsider-oriented capital markets experience incrementally greater information assimilation by analysts and the market post-MiFID II. Of note, the pre-MiFID II association remains significant. In column 3, the coefficient on *MiFID II * IR ranking * Country characteristic* is insignificant. Hence, there is no difference in the association between IR and firm value in countries with less developed and outsider-oriented markets post-MiFID II. However, in column 4, the coefficient on *MiFID II * IR ranking * Country characteristic* is negative, and

[14] Since we calculate capital market outcomes from April to March, the year 2017 includes the first three months of 2018, which are post-MiFID II. We obtain qualitatively similar results to Table 6 when we exclude the year 2017 (not tabulated).

significantly so in all panels except panel D. Hence, firms with better IR experience incrementally lower cost of capital in countries with less developed and outsider-oriented markets post-MiFID II. Overall, the results are consistent with our expectations, although not for Tobin's Q. Collectively, the evidence suggests that IR is a more effective buffer against the MiFID II shock to the information environment in countries with less developed and outsider-oriented capital markets.

5.3. Two-Country Matched Sample

While the cross-sectional variation in our sample is valuable, two caveats are in order. First, we have limited time-series, which spans a largely bull market. Second, firms may differ significantly across countries in a way that our research design cannot fully address. To supplement our main results, we perform a two-country test using data from the U.K. and Germany. We use these two countries for several reasons. First, because they are the largest in our main sample (i.e., 25% and 17% of sample years, respectively).[15] Second, because Germany exemplifies the country characteristics that we aim to capture (civil law origin, high ownership concentration, below-median financial reporting quality and Isidro et al. 2019 factors). Third, because we have more time-series for these two countries (2006-2014).[16] Hence, Germany is a good "match" for the U.K. Furthermore, we use entropy balancing to match U.K. and German firm years along all the firm-

[15] Another issue with our sample is that the U.K. may drive our results, not only because it accounts for a large portion of the sample, but also because it stands out from the rest of the sample. Indeed, the U.K. IR Society was founded well before other European equivalents, and the U.K. is the only sample country of Common Law origin. To address this issue, we re-run our tests without the U.K. The baseline results from Table 2 are robust. The interaction results from Tables 3 and 4 only hold for information assimilation and cost of capital. Furthermore, when we interact *IR Ranking* with three separate indicators for French, German, and Scandinavian civil law, we find that all three interaction terms are significant for visibility, assimilation, and Tobin's Q, while French and German civil law are significant for cost of capital. This result means that the association between IR and capital market outcomes is stronger in all civil law regimes when compared to the common law regime (i.e., the U.K. in our sample). Combined, these untabulated tests show that there is not only a first-order contrast between the Anglo-Saxon market vs. the rest of Western Europe in our sample, but that even among the Continental and Nordic European countries significant differences remain.

[16] We obtained the IR data for Germany and the U.K. before Extel was finally acquired and integrated by WeConvene. Upon request, WeConvene was not able to provide us with a comparable times series for the other European countries.

level control variables from Table 1, Panel A (untabulated). We re-estimate Model (1) by interacting *IR ranking* with an indicator for German firms instead of country characteristics.

Table 7 reports the results. In columns 1 and 3, the positive and significant coefficients on *IR ranking* indicate that better IR is associated with higher visibility and firm value, respectively, for U.K. firms. We find no evidence for assimilation and cost of capital. More importantly, the coefficient on *IR ranking * Germany* is positive (negative) and significant in columns 1 and 3 (2 and 4): German firms that are better ranked than their peers in IR enjoy greater visibility, information assimilation, firm value, and lower cost of equity capital, and the effect is incremental over that observed for matched U.K. firms. Hence, the results support those for the cross-country European sample.

5.4. Determinants of IR rankings

In addition to the greater time-series, we obtain additional data for German and U.K. firms that enable us to perform two valuable sets of tests.

First, to validate that our IR quality measure does, in fact, capture firms' choice to invest in IR (and not just outsider perceptions), we obtain data on IR resources from Extel for a subset of our German and U.K. sample (mostly larger firms). We regress the variable *IR ranking* on three measures of IR investment: budget, remuneration, and staff size. Because of sample size differences and collinearity concerns, we run separate regressions with each IR investment proxy. IR budget and remuneration are measured in ranges rather than actual figures. The variables are defined in Appendix B. The regressions include the same set of control variables as in Model (1) with industry, stock market index, and year fixed effects.

The results, which we report in Table 8, indicate that IR quality, as measured by country-level rankings for German and U.K. firms, does correlate positively and significantly with IR

resources. Indeed, the number of IR budget, IR employees, and total IR pay all exhibit a positive and significant coefficient. It should be noted that the available data for IR budget and remuneration is small, and measurement error might be significant, given that we do not have exact figures for these IR proxies. Despite those limitations, which work against finding significant results, it is reassuring that the data support our assumption that IR rankings reflect firms' investments in IR, and not merely investors' perception thereof.

Second, recent IR studies show that individual IR officers play a significant role in the effectiveness of their firm's IR (e.g., Chapman et al. 2019, Hope et al. 2018). We revisit this issue using data on IROs of German firms for two reasons. First, IRO-level tests allow us to improve comparability with the IR literature. Second, we examine the international experience of IROs, which can shed light on how firms from a country with less outsider-oriented capital markets can succeed in IR. We examine whether their experience as well as their educational and functional backgrounds explain variation in the quality of their firm's IR. To do so, we regress *IR ranking* on *IRO tenure*, an indicator for whether the IRO participates on earnings conference calls,[17] an indicator for whether they previously worked as a sell-side analyst, an indicator for whether they hold an MBA degree, and an indicator for whether they studied in a country with common law origin. Table 9 reports the results. Consistent with Chapman et al. (2019), the coefficients on IRO tenure (column 1) and conference call participation (column 2) are both positive, although only the former is statistically significant. Consistent with Hope et al. (2018), the coefficient on prior analyst experience (column 3) is also positive, albeit marginally significant. The more novel results are the positive and significant coefficients on the two variables *MBA* and *Common law university*. These coefficients indicate that German firms are more highly ranked when their IRO hold an

[17] We obtain this variable from Brochet et al. (2016), who use conference call transcripts of non-U.S. firms from Thomson StreetEvents.

MBA or a degree obtained in an Anglophone country. This result suggests that German IROs' exposure to the Anglo-Saxon culture and the English language is one potential channel through which German firms differentiate themselves in IR.

Combined, the results in Tables 8 and 9 help further validate our main thesis. First, by showing that IR rankings do capture IR quality. Second, by showing that a firm-level choice such as IR quality can be associated with more favorable capital market outcomes in countries with historically less developed institutions.

6. Conclusion

We examine investor relations (IR) in a cross-country setting. We use within-country rankings of firms' IR quality based on buy-side and sell-side professionals' survey responses for 13 European countries. We find that firms that are more highly ranked in IR exhibit significantly greater capital market benefits in the form of higher capital market visibility, information assimilation, and valuation. These benefits are significantly stronger in countries with less outsider-oriented capital markets that, accordingly, have less of a history of IR practice. We interpret this evidence as consistent with the hypothesis that IR has greater marginal benefits in a capital market environment where there is less history of IR due to capital market institutions geared towards more concentrated ownership, and therefore more room for differentiation. When we break down IR into a public and a private component, we find that the capital market benefits of both facets of IR are amplified in those countries. We also find that firms with better IR exhibit even greater information assimilation and lower cost of capital in countries with less outsider-oriented capital markets after the passage of MiFID II.

Altogether, our results indicate that higher IR quality may yield stronger market benefits when the IR market is relatively less mature. In addition to furthering our understanding of the role of IR from an academic standpoint, our results should be informative to IR practitioners. For example, firms that wish to attract and retain foreign investors without cross listing should consider investing in IR, even if their home country market is not geared towards outside investors.

While our evidence is generally robust across specifications and samples, we should caution against attributing our results to any specific country characteristics – which future research can address using appropriate settings. Furthermore, our sample consists of European firms only, which may understate the power of our tests. Future research may also examine data from emerging markets.

Appendix A: Voting statistics for the sample of 13 European countries

This table reports country-by-country statistics on the average number of votes per year and the average number of sell-side (buy-side) voters per year for the sample of 13 European countries, i.e., Austria, Belgium, Denmark, France, Germany, Italy, Norway, Portugal, Spain, Sweden, Switzerland, the Netherlands, and the United Kingdom. The sample covers the fiscal years 2014-2018.

	Average number of votes	**Average number of sell-side voters**	**Average number of buy-side voters**
Austria	792	64	38
Belgium	816	77	57
Denmark	840	62	51
France	6520	319	260
Germany	8104	336	241
Italy	3221	179	137
Netherlands	1753	146	101
Norway	741	69	44
Portugal	914	59	37
Spain	3840	180	151
Sweden	997	70	57
Switzerland	2693	165	148
United Kingdom	6166	326	252

Appendix B: Definitions of main variables

This table provides an overview of main variables used in this study. For each variable, the definition and data source are reported.

Variable	Definition	Source
Amihud illiquidity	Amihud illiquidity measure estimated according to Amihud (2002). The measure is calculated for the twelve months starting at the beginning of April of the previous year and ending at the end of March of the current year.	Thomson Reuters Datastream
Analyst following	Natural logarithm of the number of analysts who provide a (fiscal year) earnings per share (EPS) forecast for the firm.	Thomson Reuters I/B/E/S
CapEx/TA	Capital expenditures / Total assets.	Thomson Reuters Worldscope
Conferences	The number of investor conferences where the firm makes a presentation.	S&P Capital IQ
Cost of capital	The firm's cost of equity capital as defined in Claus and Thomas (2001). The cost of equity capital is calculated for the twelve months starting at the beginning of April of the previous year and ending at the end of March of the current year.	Thomson Reuters Datastream and I/BE/S databases
Firm age	Years since the firm's IPO.	Thomson Reuters Eikon
Firm size	Natural logarithm of total assets.	Thomson Reuters Worldscope
Forecast dispersion	Natural logarithm of the standard deviation of analyst EPS forecasts (for the fiscal year) deflated by the stock price.	Thomson Reuters I/B/E/S
Forecast error	Absolute difference between actual EPS and mean analyst consensus for EPS forecast (for the fiscal year) divided by the stock price.	Thomson Reuters I/B/E/S and Worldscope
Foreign institutional ownership_%	Percent of shares outstanding held by foreign institutional shareholders as of the end of March of the current year.	Thomson Reuters Eikon
Guidance	The number of corporate guidance announcements between the beginning of April of the previous year and the end of March of the current year.	S&P Capital IQ
Institutional ownership_%	Percent of shares outstanding held by institutional shareholders as of the end of March of the current year.	Thomson Reuters Eikon
Institutional ownership_#	Number of the firm's institutional shareholders as of the end of March of the current year.	Thomson Reuters Eikon
Intangibles/TA	Intangible assets / Total assets.	Thomson Reuters Worldscope
Investor meeting return	Firm-year aggregate of the 3-day market-adjusted absolute returns (MAR) around conference presentations and analyst/investor days, net of the average over the (-120, -30) estimation period and scaled by the standard deviation over the estimation period, and zero if no event takes place.	S&P Capital IQ
IR budget	Five categories of a firm's IR budget (0 = < € 250,000, 1 = € 250,000–500,000, 2 = € 500,000–1,000,000, 3 = € 1,000,000–2,000,000, and 4 = > € 2,000,000).	Extel WeConvene (formerly Extel by Thomson Reuters)
IR employees	Natural logarithm of the number of IR managers.	Extel WeConvene (formerly Extel by Thomson Reuters)
IR remuneration	Seven categories of annual IR officer remuneration (0 = < € 50,000, 1= € 50,000–70,000, 2 = € 71,000–100,000…, 7 = > € 200,000).	Extel WeConvene (formerly Extel by Thomson Reuters)
IR ranking	Ranking of firms' IR quality based on surveys conducted annually by Extel WeConvene among buy-side and sell-side firms. Surveys are conducted between February and May.	Extel WeConvene (formerly Extel by Thomson Reuters)
IR score	Natural logarithm of 0.01 + the percent of the vote for the firm used by Extel WeConvene to calculate the IR ranking.	Extel WeConvene (formerly Extel by Thomson Reuters)
Leverage	Long-term and short-term debt / Common equity.	Thomson Reuters Worldscope
Ownership largest investor	Percent of shares outstanding held by largest shareholder as of the end of March of the current year.	Thomson Reuters Eikon
R&D/TA	Research and development expenses / Total assets.	Thomson Reuters Worldscope
ROE	Return on equity.	Thomson Reuters Worldscope
Stock volatility	Standard deviation of daily stock returns calculated for the twelve months starting at the beginning of April of the previous year and ending at the end of March of the current year.	Thomson Reuters Datastream
Tobin's Q	Market value of equity plus book value of preferred stock and debt divided by book value of total assets.	Thomson Reuters Datastream and Worlscope
US cross-listing	Indicator variable equal to one if a firm also has its stock listed on the NYSE, AMEX or NASDAQ, zero otherwise.	Thomson Reuters Eikon and Datastream

Appendix C: Principal component analyses

This appendix contains two tables that report statistics on principal component analyses (PCA) used in the paper to construct firm visibility and information assimilation (Table A1) and public and private IR (Table A2).

Table A1: PCA for visibility and assimilation

Panel A of this table reports the scoring coefficients (loadings), eigenvalues, and proportion explained for the first factor from a principal component analysis of four *visibility* variables (i.e., analyst following, institutional ownership, number of institutional owners, foreign institutional ownership). Panel B of this table reports the scoring coefficients (loadings), eigenvalues, and proportion explained for the first factor from a principal component analysis of four *assimilation* variables (i.e., analyst forecast dispersion, forecast error, volatility, and illiquidity).

Panel A: PCA for visibility

Scoring coefficients (loadings)	Visibility Cross-country	Visibility GER + U.K.
Analyst following	**0.5075**	**0.5313**
Institutional ownership_%	**0.4192**	**0.3286**
Institutional ownership_#	**0.5420**	**0.6022**
Foreign institutional ownership_%	**0.5224**	**0.4971**
Eigenvalue	2.5015	2.1383
Proportion	0.6254	0.5346
Observations	4,458	2,668

Panel B: PCA for assimilation

Scoring coefficients (loadings)	Assimilation Cross-country	Assimilation GER + U.K.
Forecast dispersion	**0.5698**	**0.5920**
Forecast error	**0.5643**	**0.5737**
Stock volatility	**0.5562**	**0.5578**
Amihud illiquidity	**0.2179**	**0.0960**
Eigenvalue	1.9940	1.9408
Proportion	0.4985	0.4852
Observations	4,247	2,327

Table A2: Public IR first stage

This table reports coefficients from cross-country regressions of our measure of investor relations quality, *IR ranking*, on three proxies for disclosure quality: *Conferences*, *Guidance*, and *U.S. cross-listing*. We label fitted values from the regressions as *Public IR* and the residuals as *Private IR*. All regressions include a constant (not reported). All variables are defined in Appendix B. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1%-, 5%-, and 10%-level, respectively.

	IR ranking
Conferences	0.0224***
	(6.401)
Guidance	0.0679***
	(6.786)
U.S. cross-listing	0.4664***
	(5.068)
Year FE	Yes
Industry FE	Yes
Country FE	Yes
Observations	4,638
R-squared	0.541

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Table 1: Summary statistics for the sample of 13 European countries

This table reports summary statistics for the sample of 13 European countries, i.e., Austria, Belgium, Denmark, France, Germany, Italy, Norway, Portugal, Spain, Sweden, Switzerland, the Netherlands, and the United Kingdom. The sample covers the fiscal years 2014-2018. Panel A provides summary statistics for firm characteristics. Country characteristics are summarized in Panel B. *Foundation year of IR society* is the year in which a country's IR society was founded. *Ownership concentration* is based on the variable *Ownership largest investor* and measures the mean ownership stake of the firms' largest investor per country. *Language distance to English* refers to Brochet et al. (2016) and measures the distance between a country's main language and English relying on a five-point scale classification system. *Financial reporting*, *Factor 1*, *Factor 2*, *Factor 3*, and *Factor 4* refer to Isidro et al. (2019). *Financial reporting* is a reporting score, which is the result of factor analysis on six financial reporting outcome variables: abnormal return, abnormal volume, reporting transparency, disclosure quality, return synchronicity, and asymmetric timeliness. *Factor 1* is the result of factor analysis on country-level characteristics associated with institutional and governance systems, and economic and social welfare. *Factor 2* is the result of factor analysis on country-level characteristics related to protection of investors' rights and capital markets development. *Factor 3* loads on country-level characteristics that capture political transparency, and tax and accounting enforcement. *Factor 4* loads on country-level characteristics that relate to the openness of society to external investment. Panel C reports the results of univariate regressions of *Foundation year of IR society* on country-level characteristics.

Panel A: Cross-country sample

	N	Mean	P25	Median	P75	SD
Amihud illiquidity	4525	0.2666	0.0007	0.0045	0.0691	0.8048
Analyst following	4458	2.2240	1.6094	2.3979	2.8904	0.8426
CapEx/TA	4638	0.0391	0.0104	0.0287	0.0524	0.0632
Cost of capital	2101	0.0764	0.0593	0.0753	0.0933	0.0314
Firm age	4638	20.6701	8	15	23	22.7699
Firm size	4638	15.0979	13.7827	14.9783	16.2556	2.0870
Forecast dispersion	4278	-5.3822	-6.1572	-5.4802	-4.7072	1.1114
Forecast error	4275	0.0234	0.0034	0.0077	0.0188	0.0525
Foreign institutional ownership_%	4528	0.2455	0.1218	0.2208	0.3462	0.1586
Intangibles/TA	4638	0.2207	0.0285	0.1521	0.3746	0.2171
Institutional ownership_%	4528	0.3986	0.2044	0.3593	0.5688	0.2371
Institutional ownership_#	4528	5.2297	4.6634	5.3518	6.0591	1.0467
IR ranking	4638	0	-0.4937	0.3504	0.7589	1
IR score	4638	0	-0.7174	0.0634	0.7329	1
Investor meeting return	4528	3.3725	0	1.3640	4.3326	5.2549
Leverage	4638	1.0387	0.2471	0.5991	1.2071	4.9288
Ownership largest investor	4638	0.2652	0.0984	0.1958	0.4102	0.2082
R&D/TA	4638	0.0170	0	0	0.0149	0.0445
ROE	4638	0.1157	0.0537	0.1137	0.1823	0.5239
Stock return	4528	0.0611	-0.1333	0.0416	0.2180	0.3555
Stock volatility	4528	0.0187	0.0136	0.0171	0.0217	0.0074
Tobin's Q	4638	1.7858	1.0549	1.3525	1.9667	1.2456
U.S. cross-listing	4638	0.0642				0.2452

Table 1, continued

Panel B: Country characteristics

	N	Foundation year of IR society	Ownership concentration	Language distance to English	Financial reporting	Factor 1	Factor 2	Factor 3	Factor 4
Austria	151	1992	0.4105	2	-1.048	1.043	-1.320	-0.622	0.180
Belgium	148	1992	0.2846	2	-0.302	0.533	-0.836	-0.106	-0.987
Denmark	122	1988	0.2213	3	0.586	1.295	0.118	-0.420	1.007
France	605	1987	0.3112	5	0.302	0.473	-0.612	0.625	-1.427
Germany	825	1994	0.2989	2	-0.612	0.953	-0.961	0.556	-1.043
Italy	386	1989	0.4128	5	-0.511	0.082	-0.972	0.370	-0.967
Netherlands	170	1991	0.2039	2	0.967	1.092	-0.339	0.248	0.497
Norway	113	1995	0.3136	3	-	-	-	-	-
Portugal	76	2009	0.4544	5	-1.140	0.059	-1.250	-0.311	-0.013
Spain	300	1991	0.2925	5	-0.543	0.129	-0.680	0.256	-0.323
Sweden	221	1995	0.1862	3	1.168	1.296	-0.324	0.122	0.454
Switzerland	365	1992	0.2351	2	0.422	1.296	-0.067	-0.147	-0.756
United Kingdom	1156	1980	0.1608	1	2.083	0.687	1.337	0.875	-0.272

Panel C: Univariate regressions

Dep. Variable:	Foundation year of IR society						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ownership concentration	43.2510***						
	(21.332)						
Language distance to English		1.3889***					
		(13.320)					
Financial reporting score			-4.4212***				
			(-48.453)				
Factor 1				2.6894***			
				(5.828)			
Factor 2					-5.3857***		
					(-63.675)		
Factor 3						-9.5834***	
						(-22.185)	
Factor 4							-0.9178***
							(-3.867)
Observations	4,638	4,638	4,525	4,525	4,525	4,525	4,525
R-squared	0.370	0.132	0.657	0.029	0.709	0.432	0.009

Table 2: Benefits of IR - Cross-country evidence from 13 European countries

Panel A of this table reports coefficients from regressions of capital market outcomes on the main measure of investor relations quality, *IR ranking*, and the set of control variables. Panel B shows the coefficients from regressions of the capital market outcomes used in Panel A on an alternative measure of investor relations quality, *IR score*, and the same set of control variables as used in Panel A. Panel C reports the results of a lead-lag analysis that regresses capital market outcomes measured in the year t+1 on *IR ranking* in year t and the same set of control variables as used in Panel A in year t. All regression specifications in all three panels include year, (Datastream ICB supersector) industry, and country fixed effects, and a constant (not reported). All variables are defined in Appendix B. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1%-, 5%-, and 10%-level, respectively. The sample covers the five fiscal years from 2014 to 2018 for the following 13 countries: Austria, Belgium, Denmark, France, Germany, Italy, Norway, Portugal, Spain, Sweden, Switzerland, the Netherlands, and the United Kingdom.

Panel A: Benefits of IR

Dep. Variable:	(1) Analyst following	(2) Institutional ownership_%	(3) Institutional ownership_#	(4) Foreign institutional ownership_%	(5) Forecast dispersion	(6) Forecast error	(7) Stock volatility	(8) Amihud illiquidity	(9) Tobin's Q	(10) Cost of capital
IR ranking	**0.2231*** **	**0.0122** **	**0.2149*** **	**0.0317*** **	**-0.1014*** **	**-0.0029** **	**-0.0006*** **	**-0.1201*** **	**0.3295*** **	**-0.0053*** **
	(10.838)	**(1.979)**	**(10.652)**	**(6.729)**	**(-3.137)**	**(-2.115)**	**(-3.153)**	**(-6.219)**	**(8.229)**	**(-4.352)**
Firm size	0.2688***	0.0092***	0.4132***	0.0198***	0.0357*	-0.0016**	-0.0010***	-0.1275***	-0.2113***	0.0022***
	(22.487)	(2.861)	(34.115)	(7.899)	(1.942)	(-2.059)	(-8.086)	(-9.800)	(-9.740)	(2.820)
ROE	0.0810**	0.0069	0.1096**	0.0077	-0.3124**	-0.0166**	-0.0023***	-0.0453*	0.3281***	-0.0007
	(1.972)	(1.130)	(2.152)	(1.279)	(-2.573)	(-2.415)	(-2.748)	(-1.718)	(3.003)	(-0.498)
Leverage	-0.0050	0.0001	-0.0060	0.0000	0.0077	0.0002	0.0001	0.0026	0.0008	-0.0000
	(-1.261)	(0.295)	(-1.127)	(0.065)	(1.194)	(0.827)	(1.426)	(0.863)	(0.245)	(-0.155)
R&D/TA	0.5868**	0.1948*	0.7894**	0.1326	1.9330***	0.0329	0.0189***	-0.7709	4.9414***	0.0002
	(2.036)	(1.883)	(2.326)	(1.434)	(2.783)	(1.229)	(3.826)	(-1.635)	(4.363)	(0.004)
Intangibles/TA	0.1339	0.1091***	0.1236	0.0775***	-0.5443***	-0.0186***	-0.0016*	0.0745	-0.2851*	-0.0003
	(1.635)	(4.454)	(1.638)	(3.743)	(-4.071)	(-3.033)	(-1.927)	(0.821)	(-1.747)	(-0.061)
CapEx/TA	0.3454	-0.0322	0.4740**	0.0666	-1.2669**	-0.0114	0.0000	-0.1617	0.3831	-0.0470*
	(1.497)	(-0.482)	(2.226)	(1.107)	(-1.971)	(-0.258)	(0.026)	(-0.802)	(0.988)	(-1.838)
U.S. cross-listing	-0.2496***	-0.0439**	-0.1671**	-0.0052	0.0414	0.0025	0.0012*	0.2822***	0.1174	0.0045
	(-3.870)	(-2.087)	(-2.482)	(-0.298)	(0.387)	(0.523)	(1.830)	(4.815)	(1.064)	(0.987)
Firm age	-0.0009	-0.0006***	-0.0002	-0.0006***	-0.0024**	-0.0000	-0.0000**	0.0007	0.0003	-0.0000
	(-0.899)	(-3.301)	(-0.237)	(-3.762)	(-2.248)	(-1.137)	(-2.119)	(1.130)	(0.320)	(-0.137)
Ownership largest investor	-0.3158***	-0.4675***	-0.7413***	-0.3396***	-0.2794**	-0.0120**	-0.0019***	0.3060***	0.1904	-0.0216***
	(-3.487)	(-23.810)	(-8.679)	(-21.857)	(-2.281)	(-2.204)	(-2.753)	(3.282)	(1.295)	(-4.664)
Stock return	-0.0615**	-0.0099	0.0007	0.0029	-0.6118***	-0.0202***	-0.0014**	-0.1004**		
	(-2.297)	(-1.259)	(0.026)	(0.514)	(-8.115)	(-5.196)	(-2.183)	(-2.189)		
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,458	4,528	4,528	4,528	4,278	4,275	4,528	4,525	4,638	2,101
R-squared	0.579	0.580	0.741	0.394	0.286	0.194	0.384	0.396	0.352	0.223

Table 2, continued

Panel B: IR score

Dep. Variable:	(1) Analyst following	(2) Institutional ownership_%	(3) Institutional ownership_#	(4) Foreign institutional ownership_%	(5) Forecast dispersion	(6) Forecast error	(7) Stock volatility	(8) Amihud illiquidity	(9) Tobin's Q	(10) Cost of capital
IR score	**0.3003*** **	**0.0115** **	**0.2352*** **	**0.0214*** **	**-0.1956*** **	**-0.0065*** **	**-0.0008*** **	**-0.0650*** **	**0.3518*** **	**-0.0057*** **
	(16.905)	**(2.250)**	**(13.017)**	**(5.302)**	**(-6.533)**	**(-4.407)**	**(-4.357)**	**(-3.630)**	**(9.731)**	**(-5.226)**
Controls as in Panel A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,458	4,528	4,528	4,528	4,278	4,275	4,528	4,525	4,638	2,101
R-squared	0.609	0.580	0.748	0.388	0.296	0.200	0.386	0.391	0.363	0.225

Panel C: Lead-lag analysis

Dep. Variable:	(1) Analyst following t+1	(2) Institutional ownership_% t+1	(3) Institutional ownership_# t+1	(4) Foreign institutional investors_% t+1	(5) Forecast dispersion t+1	(6) Forecast error t+1	(7) Stock volatility t+1	(8) Amihud illiquidity t+1	(9) Tobin's Q t+1	(10) Cost of capital t+1
IR ranking	**0.1948*** **	**0.0082**	**0.1968*** **	**0.0290*** **	**-0.1090*** **	**-0.0022* **	**-0.0005** **	**-0.0730*** **	**0.2548*** **	**-0.0063*** **
	(8.663)	**(1.176)**	**(9.880)**	**(5.156)**	**(-3.002)**	**(-1.802)**	**(-2.096)**	**(-4.684)**	**(5.732)**	**(-4.901)**
Controls as in Panel A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,897	2,925	2,925	2,925	2,829	2,840	2,925	2,923	2,985	1,257
R-squared	0.521	0.613	0.720	0.406	0.278	0.209	0.344	0.473	0.355	0.281

Table 3: Benefits of IR depending on country characteristics

This table reports coefficients from regressions of the dependent variables *Visibility*, *Assimilation*, *Tobin's Q*, and *Cost of capital* on interactions of *IR ranking* with different indicator variables for country characteristics, i.e., a dummy equaling one for countries with ownership concentration above the sample median (*High concentration*) (Panel A), a dummy equaling one for countries with language distance to English above the sample median (*High language distance*) (Panel B), a dummy equaling one for countries with a financial reporting score below or equal to the sample median (*Low reporting*) and a value of Factor 2 below or equal to the sample median (*Low Factor 2*) (Panel C), a dummy equaling one for countries with , and a dummy equaling one for countries with the value of Factor 3 below or equal to the sample median (*Low Factor 3*) (Panel D), along with *IR ranking* and the set of control variables used in the regressions shown in Table 2. Language distance to English refers to Brochet et al. (2016) and the financial reporting score as well as Factor 2 and 3 refer to Isidro et al. (2019). *Visibility* is the first factor from a principal component analysis of four visibility variables (analyst following, institutional ownership, number of institutional owners, foreign institutional ownership). *Assimilation* is the first factor from a principal component analysis of analyst forecast dispersion, forecast error, volatility, and illiquidity. See Appendix C, Table A1, for details on the principal component analysis. All regression specifications include year, (Datastream ICB supersector) industry, and country fixed effects, and a constant (not reported). All variables are defined in Appendix B. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1%-, 5%-, and 10%-level, respectively.

Panel A: Ownership concentration

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Tobin's Q	(4) Cost of capital
IR ranking * High concentration	**0.3519*** **	**-0.3818*** **	**0.2177*** **	**-0.0038* **
	(5.411)	**(-5.540)**	**(3.988)**	**(-1.890)**
IR ranking	0.2997***	-0.0920**	0.2870***	-0.0047***
	(7.880)	(-2.328)	(6.821)	(-3.553)
High concentration	-0.0262	-0.0225	0.0461	-0.0011
	(-0.563)	(-0.311)	(0.997)	(-0.522)
Firm size	0.4363***	-0.0711***	-0.2234***	0.0024***
	(20.545)	(-3.103)	(-10.095)	(3.057)
ROE	0.1383*	-0.4983***	0.3260***	-0.0006
	(1.909)	(-2.588)	(3.023)	(-0.470)
Leverage	-0.0058	0.0128	0.0008	-0.0000
	(-0.868)	(1.203)	(0.288)	(-0.144)
R&D/TA	1.4155**	2.7569***	4.9338***	0.0005
	(2.299)	(3.658)	(4.313)	(0.013)
Intangibles/TA	0.5440***	-0.6263***	-0.3125*	0.0003
	(3.483)	(-3.843)	(-1.901)	(0.052)
CapEx/TA	0.5166	-0.7565	0.3145	-0.0453*
	(0.952)	(-0.887)	(0.821)	(-1.782)
U.S. cross-listing	-0.2305*	0.0663	0.1730	0.0035
	(-1.705)	(0.490)	(1.555)	(0.771)
Firm age	-0.0034**	-0.0028**	0.0004	-0.0000
	(-2.210)	(-2.502)	(0.411)	(-0.129)
Ownership largest investor	-2.4697***	-0.4490***	0.2272	-0.0222***
	(-16.854)	(-2.983)	(1.542)	(-4.757)
Stock return	-0.0404	-0.7238***		
	(-0.857)	(-6.217)		
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,458	4,247	4,638	2,101
R-squared	0.617	0.374	0.356	0.225

Table 3, continued

Panel B: Language distance to English

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Tobin's Q	(4) Cost of capital
IR ranking * High language distance	**0.3745*** **	**-0.4117*** **	**0.4481*** **	**-0.0074** **
	(4.134)	**(-4.181)**	**(5.389)**	**(-2.166)**
IR ranking	0.3418***	-0.1367***	0.2953***	-0.0048***
	(8.783)	(-3.526)	(7.256)	(-3.835)
Controls as in Panel A	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,458	4,247	4,638	2,101
R-squared	0.615	0.371	0.359	0.226

Panel C: Financial reporting score and Factor 2

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Tobin's Q	(4) Cost of capital
IR ranking * Low reporting (Factor 2)	**0.4155*** **	**-0.4615*** **	**0.2849*** **	**-0.0060*** **
	(5.670)	**(-6.024)**	**(4.666)**	**(-2.618)**
IR ranking	0.2735***	-0.0744*	0.2721***	-0.0043***
	(7.136)	(-1.834)	(6.295)	(-3.080)
Controls as in Panel A	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,349	4,143	4,525	2,049
R-squared	0.631	0.372	0.358	0.226

Panel D: Factor 3

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Tobin's Q	(4) Cost of capital
IR ranking * Low Factor 3	**0.4140*** **	**-0.4181*** **	**0.2443*** **	**-0.0048** **
	(5.314)	**(-4.909)**	**(3.694)**	**(-2.045)**
IR ranking	0.3000***	-0.1097***	0.2966***	-0.0048***
	(7.976)	(-2.807)	(7.241)	(-3.588)
Controls as in Panel A	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,349	4,143	4,525	2,049
R-squared	0.630	0.369	0.356	0.224

Table 4: Public and private IR

This table reports coefficients from regressions of the dependent variables *Visibility*, *Assimilation*, *Tobin's Q*, and *Cost of capital* on interactions of *Public IR* and *Private IR* with different indicator variables for country characteristics, i.e., a dummy equaling one for countries with ownership concentration above the sample median (*High concentration*) (Panel A), a dummy equaling one for countries with language distance to English above the sample median (*High language distance*) (Panel B), a dummy equaling one for countries with a financial reporting score below or equal to the sample median (*Low reporting*) and a dummy equaling one for countries with the value of Factor 2 below or equal to the sample median (*Low Factor 2*) (Panel C), , and a dummy equaling one for countries with the value of Factor 3 below or equal to the sample median (*Low Factor 3*) (Panel D), along with *Public IR* and *Private IR* and the set of control variables used in the regressions shown in Tables 2 and 3. Language distance to English refers to Brochet et al. (2016) and the financial reporting score as well as Factor 2 and 3 refer to Isidro et al. (2019). *Public IR* (*Private IR*) are calculated as fitted values (residuals) from the regression of the variable *IR ranking* on three proxies for disclosure quality: *Conferences*, *Guidance*, and *U.S. cross-listing*. See Appendix C, Table A2, for details on the first stage regression. *Visibility* is the first factor from a principal component analysis of four visibility variables (analyst following, institutional ownership, number of institutional owners, foreign institutional ownership). *Assimilation* is the first factor from a principal component analysis of analyst forecast dispersion, forecast error, volatility, and illiquidity. See Appendix C, Table A1, for details on the principal component analysis. All regression specifications include year, (Datastream ICB supersector) industry, and country fixed effects, and a constant (not reported). All variables are defined in Appendix B. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1%-, 5%-, and 10%-level, respectively.

Panel A: Ownership concentration

	(1)	(2)	(3)	(4)
Dep. Variable:	Visibility	Assimilation	Tobin's Q	Cost of capital
Private IR * High concentration	**0.3365*** **	**-0.4037*** **	**0.2047*** **	**-0.0037**
	(4.295)	**(-5.176)**	**(2.976)**	**(-1.617)**
Public IR * High concentration	**0.3429*** **	**-0.3212** **	**0.1932* **	**-0.0047**
	(2.990)	**(-2.435)**	**(1.883)**	**(-0.872)**
Private IR	0.2900***	-0.0864**	0.2749***	-0.0048***
	(7.651)	(-2.227)	(6.008)	(-3.468)
Public IR	0.5950***	-0.1065	0.6223***	-0.0030
	(3.916)	(-0.750)	(4.474)	(-0.439)
High concentration	-0.0270	-0.0292	0.0472	-0.0011
	(-0.577)	(-0.401)	(1.009)	(-0.543)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,458	4,247	4,638	2,101
R-squared	0.619	0.374	0.359	0.225

Panel B: Language distance to English

	(1)	(2)	(3)	(4)
Dep. Variable:	Visibility	Assimilation	Tobin's Q	Cost of capital
Private IR * High language distance	**0.3629*** **	**-0.4227*** **	**0.4015*** **	**-0.0088** **
	(3.736)	**(-4.108)**	**(4.192)**	**(-2.472)**
Public IR * High language distance	**0.4253*** **	**-0.3765** **	**0.6161*** **	**-0.0025**
	(2.650)	**(-2.057)**	**(3.368)**	**(-0.383)**
Private IR	0.3298***	-0.1332***	0.2894***	-0.0046***
	(8.384)	(-3.413)	(6.795)	(-3.475)
Public IR	0.6654***	-0.1786	0.6111***	-0.0052
	(4.539)	(-1.324)	(5.067)	(-0.825)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,458	4,247	4,638	2,101
R-squared	0.617	0.371	0.364	0.227

Table 4, continued

Panel C: Financial reporting score and Factor 2

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Tobin's Q	(4) Cost of capital
Private IR * Low reporting (Low Factor 2)	**0.3716*** **	**-0.4853*** **	**0.2540*** **	**-0.0052** **
	(4.549)	**(-5.857)**	**(3.519)**	**(-2.153)**
Public IR * Low reporting (Low Factor 2)	**0.5257*** **	**-0.3720** **	**0.3235** **	**-0.0098**
	(3.374)	**(-2.217)**	**(2.313)**	**(-1.517)**
Private IR	0.2760***	-0.0677*	0.2668***	-0.0046***
	(7.263)	(-1.698)	(5.621)	(-3.195)
Public IR	0.4672***	-0.0857	0.5635***	-0.0008
	(3.068)	(-0.545)	(3.755)	(-0.105)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,349	4,143	4,525	2,049
R-squared	0.632	0.372	0.361	0.227

Panel D: Factor 3

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Tobin's Q	(4) Cost of capital
Private IR * Low Factor 3	**0.4045*** **	**-0.4738*** **	**0.2335*** **	**-0.0057** **
	(4.685)	**(-5.222)**	**(3.042)**	**(-2.260)**
Public IR * Low Factor 3	**0.3804** **	**-0.2161**	**0.1887**	**-0.0013**
	(2.512)	**(-1.414)**	**(1.319)**	**(-0.203)**
Private IR	0.2889***	-0.0857**	0.2813***	-0.0044***
	(7.710)	(-2.198)	(6.223)	(-3.281)
Public IR	0.5685***	-0.2114	0.6462***	-0.0059
	(3.495)	(-1.407)	(4.728)	(-0.885)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,349	4,143	4,525	2,049
R-squared	0.631	0.370	0.359	0.225

Table 5: Information Content of Investor Conferences and Analyst/Investor Days

This table reports coefficients from regressions of the dependent variable *Investor meeting return* on interactions of *IR ranking* with different indicator variables for country characteristics, i.e., a dummy equaling one for countries with ownership concentration above the sample median (*High concentration*) (column 1), a dummy equaling one for countries with language distance to English above the sample median (*High language distance*) (column 2), a dummy equaling one for countries with a financial reporting score below or equal to the sample median (*Low reporting*) and a value of Factor 2 below or equal to the sample median (*Low Factor 2*) (column 3), and a dummy equaling one for countries with the value of Factor 3 below or equal to the sample median (*Low Factor 3*) (column 4), along with *IR ranking* and the set of control variables used in the regressions shown in Table 2. Language distance to English refers to Brochet et al. (2016) and the financial reporting score as well as Factor 2 and 3 refer to Isidro et al. (2019). All regression specifications include year, (Datastream ICB supersector) industry, and country fixed effects, and a constant (not reported). All variables are defined in Appendix B. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1%-, 5%-, and 10%-level, respectively.

Dep. Variable:	Investor meeting return			
	(1) Ownership	(2) Language	(3) Reporting and Factor 2	(4) Factor 3
IR ranking * High concentration	**1.2529*** **			
	(4.446)			
IR ranking * High language distance		**-0.7459***		
		(-1.768)		
IR ranking * Low reporting (Factor 2)			**1.5020*** **	
			(4.814)	
IR ranking * Low Factor 3				**2.1614*** **
				(6.274)
IR ranking	0.6169***	0.9177***	0.5208***	0.5106***
	(3.991)	(6.001)	(3.264)	(3.172)
High concentration	0.2682			
	(1.152)			
Firm size	0.7773***	0.8715***	0.7473***	0.7198***
	(8.036)	(9.022)	(7.508)	(7.581)
ROE	0.1542	0.1576	0.1579	0.1396
	(0.865)	(0.844)	(0.893)	(0.826)
Leverage	-0.0245	-0.0250	-0.0245	-0.0254
	(-0.815)	(-0.861)	(-0.812)	(-0.833)
R&D/TA	13.4635***	13.5719***	13.8767***	13.8585***
	(3.373)	(3.451)	(3.413)	(3.543)
Intangibles/TA	0.4095	0.6358	0.3390	0.3401
	(0.844)	(1.293)	(0.688)	(0.697)
CapEx/TA	0.6319	1.2488	0.5896	0.5751
	(0.673)	(1.422)	(0.650)	(0.677)
U.S. cross-listing	3.3591***	2.9600***	3.6960***	3.6710***
	(4.049)	(3.624)	(4.367)	(4.356)
Firm age	0.0012	0.0008	0.0012	0.0004
	(0.185)	(0.121)	(0.189)	(0.066)
Ownership largest investor	-2.9060***	-3.2337***	-2.7918***	-2.7564***
	(-5.586)	(-6.253)	(-5.358)	(-5.291)
Stock return	-0.1416	-0.0716	-0.1966	-0.1913
	(-0.816)	(-0.406)	(-1.101)	(-1.082)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,528	4,528	4,419	4,419
R-squared	0.378	0.373	0.384	0.391

Table 6: MiFID II and IR benefits depending on country characteristics

Panels A to E report coefficients from regressions of the dependent variables *Visibility*, *Assimilation*, *Tobin's Q*, and *Cost of capital* on triple interactions of *IR ranking* with a dummy equaling one for the observations referring to the year 2018 (*MiFID II*) and a dummy equaling one for countries with ownership concentration above the sample median (*High concentration*) (Panel A), a dummy equaling one for countries with language distance to English (Brochet et al. 2016) above the sample median (*High language distance*) (Panel B), a dummy equaling one for countries with a financial reporting score (Isidro et al. 2019) below or equal to the sample median (*Low reporting*) and a dummy equaling one for countries with the value of Factor 2 (Isidro et al. 2019) below or equal to the sample median (*Low Factor 2*) (Panel C), , or a dummy equaling one for countries with the value of Factor 3 (Isidro et al. 2019) below or equal to the sample median (*Low Factor 3*) (Panel D) along with *IR ranking* and the set of control variables used in the regressions shown in Tables 2-4. *Visibility* is the first factor from a principal component analysis of four visibility variables (analyst following, institutional ownership, number of institutional owners, foreign institutional ownership). *Assimilation* is the first factor from a principal component analysis of analyst forecast dispersion, forecast error, volatility, and illiquidity. See Appendix C, Table A1, for details on the principal component analysis. All regression specifications include year, (Datastream ICB supersector) industry, and country fixed effects and a constant (not reported). All variables are defined in Appendix B. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1%-, 5%-, and 10%-level, respectively. Switzerland is excluded from this analysis.

Panel A: Ownership concentration

	(1)	(2)	(3)	(4)
Dep. Variable:	Visibility	Assimilation	Tobin's Q	Cost of capital
IR ranking * MiFID II * High concentration	**-0.0485**	**-0.2842*** **	**0.1057**	**-0.0155** **
	(-0.732)	**(-2.848)**	**(1.527)**	**(-2.209)**
IR ranking * MiFID II	0.0427	-0.0830	0.0174	0.0015
	(1.006)	(-1.638)	(0.391)	(0.483)
IR ranking * High concentration	0.4037***	-0.2535***	0.1990***	-0.0048**
	(6.142)	(-3.438)	(3.177)	(-2.179)
MiFID II * High concentration	-0.0766	0.0752	0.0937*	0.0061
	(-1.229)	(0.991)	(1.654)	(0.805)
IR ranking	0.2910***	-0.0692*	0.2826***	-0.0047***
	(7.190)	(-1.709)	(6.461)	(-3.503)
MiFID II	0.1404**	0.1719***	-0.1525***	-0.0005
	(2.443)	(2.721)	(-3.014)	(-0.091)
High concentration	-0.0279	-0.0154	0.0610	-0.0025
	(-0.581)	(-0.224)	(1.370)	(-1.207)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,099	3,897	4,273	1,940
R-squared	0.620	0.370	0.357	0.221

Table 6, continued

Panel B: Language distance to English

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Tobin's Q	(4) Cost of capital
IR ranking * MiFID II * High language distance	**-0.0645**	**0.1458**	**-0.1095**	**-0.0340*** **
	(-0.780)	**(1.261)**	**(-1.242)**	**(-2.852)**
IR ranking * MiFID II	0.0634	-0.1676***	0.0909**	0.0018
	(1.550)	(-3.305)	(2.269)	(0.573)
IR ranking * High language distance	0.4208***	-0.4633***	0.5019***	-0.0068**
	(4.114)	(-4.197)	(5.372)	(-1.965)
MiFID II * High language distance	0.0100	-0.2151**	0.0324	0.0077
	(0.152)	(-2.512)	(0.503)	(0.653)
IR ranking	0.3176***	-0.0828**	0.2683***	-0.0048***
	(7.460)	(-2.005)	(6.169)	(-3.625)
MiFID II	0.0994**	0.2403***	-0.0605	0.0011
	(1.986)	(3.766)	(-1.464)	(0.229)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,099	3,897	4,273	1,940
R-squared	0.614	0.365	0.361	0.221

Panel C: Financial reporting score and Factor 2

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Tobin's Q	(4) Cost of capital
IR ranking * MiFID II * Low reporting (Low F2)	**-0.0318**	**-0.2131****	**0.0328**	**-0.0131***
	(-0.434)	**(-1.975)**	**(0.475)**	**(-1.840)**
IR ranking * MiFID II	0.0756*	-0.1208**	0.0423	0.0006
	(1.652)	(-2.255)	(0.886)	(0.185)
IR ranking * Low reporting (Low Factor 2)	0.4536***	-0.3940***	0.3197***	-0.0059**
	(5.357)	(-4.617)	(4.601)	(-2.449)
MiFID II * Low reporting (Low Factor 2)	-0.0878	0.1041	0.1198**	0.0070
	(-1.294)	(1.330)	(2.038)	(0.894)
IR ranking	0.2423***	-0.0360	0.2497***	-0.0041***
	(5.782)	(-0.835)	(5.401)	(-2.844)
MiFID II	0.1650***	0.1378**	-0.1436***	-0.0014
	(2.742)	(2.149)	(-2.655)	(-0.268)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	3,990	3,793	4,160	1,888
R-squared	0.631	0.366	0.361	0.220

Table 6, continued

Panel D: Factor 3

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Tobin's Q	(4) Cost of capital
IR ranking * MiFID II * Low Factor 3	**-0.0172**	**-0.2694****	**-0.0845**	**-0.0074**
	(-0.216)	**(-2.190)**	**(-1.128)**	**(-1.059)**
IR ranking * MiFID II	0.0732*	-0.1449**	0.0990**	0.0003
	(1.670)	(-2.524)	(2.048)	(0.116)
IR ranking * Low Factor 3	0.4079***	-0.3703***	0.2522***	-0.0051**
	(4.500)	(-3.809)	(3.388)	(-2.113)
MiFID II * Low Factor 3	-0.0580	0.2643***	-0.0062	0.0071
	(-0.913)	(2.892)	(-0.104)	(0.914)
IR ranking	0.2774***	-0.0586	0.2722***	-0.0046***
	(6.707)	(-1.390)	(6.083)	(-3.321)
MiFID II	0.1443***	0.0804	-0.0478	-0.0014
	(3.090)	(1.235)	(-0.994)	(-0.294)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	3,990	3,793	4,160	1,888
R-squared	0.628	0.365	0.356	0.218

Table 7: Entropy balanced panel for Germany and the U.K. for fiscal years 2006-2014

For a large panel of German and U.K. firms, this table reports coefficients from regressions of the dependent variables *Visibility*, *Assimilation*, *Tobin's Q*, and *Cost of capital* on our measure of investor relations quality, *IR ranking*, the interaction term *IR ranking * Germany*, along with the same set of control variables as used in Table 2. The sample period covers the fiscal years 2006-2014. *Germany* is an indicator variable, which equals one for German firms, and zero for U.K. firms. U.K. firms are weighted based on the entropy balance technique, so that mean and variance for industries and years as well as for the variables *Firm size, ROE, Leverage, R&D/TA, Intangibles/TA, CapEx/TA, Firm age, U.S. cross-listing, Ownership largest investor,* and *Stock return* are the same in the German and U.K. sample. *Visibility* is the first factor from a principal component analysis of four visibility variables (analyst following, institutional ownership, number of institutional owners, foreign institutional ownership). *Assimilation* is the first factor from a principal component analysis of analyst forecast dispersion, forecast error, volatility, and illiquidity. See Appendix C, Table A1, for details on the principal component analysis. All regression specifications include year and stock index fixed effects as well as industry fixed effects and a constant (not reported). All variables are defined in Appendix B. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1%-, 5%-, and 10%-level, respectively.

	(1)	(2)	(3)	(4)
Dep. Variable:	Visibility	Assimilation	Tobin's Q	Cost of capital
IR ranking * Germany	**0.2519*** **	**-0.2762*** **	**0.1207** **	**-0.0056** **
	(3.641)	**(-3.326)**	**(2.115)**	**(-2.345)**
IR ranking	0.2141***	-0.0236	0.1586***	0.0024*
	(5.389)	(-0.469)	(4.825)	(1.743)
Firm size	0.2803***	0.1237***	-0.4062***	0.0035***
	(10.996)	(2.599)	(-16.003)	(3.562)
ROE	-0.0807	-2.4593***	0.7048***	-0.0098*
	(-0.623)	(-6.206)	(5.296)	(-1.816)
Leverage	-0.0102	0.0717**	0.0331***	0.0025***
	(-0.602)	(2.027)	(3.239)	(3.073)
R&D/TA	-0.2096	1.2623	5.4426***	-0.1047***
	(-0.260)	(1.524)	(7.056)	(-3.492)
Intangibles/TA	0.3271**	0.1445	-0.3346***	0.0007
	(2.070)	(0.520)	(-2.616)	(0.119)
CapEx/TA	-0.7472	0.9681	-1.1026*	-0.0396*
	(-1.169)	(0.885)	(-1.885)	(-1.746)
U.S. cross-listing	-0.1575*	0.1952**	0.4485***	-0.0035
	(-1.714)	(2.097)	(6.127)	(-1.054)
Firm age	0.0019*	-0.0042***	0.0000	0.0000
	(1.952)	(-3.136)	(0.056)	(1.287)
Ownership largest investor	-2.0873***	-0.2519	0.8617***	-0.0249***
	(-14.126)	(-1.374)	(6.865)	(-5.512)
Stock return	-0.1139**	0.2185		
	(-2.046)	(1.237)		
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Index FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	2,668	2,327	2,673	2,247
R-squared	0.693	0.590	0.569	0.477

Table 8: IR ranking and investment in IR

For the sample of German and U.K. firms, this table reports coefficients from regressions of the measure of investor relations quality, *IR ranking*, on three measures of IR investment, i.e., number of IR employees, IR remuneration, and IR budget, along with a set of control variables. Data on the IR investment measures is obtained for different subsets of sample firms. All regression specifications include year, industry, and stock index fixed effects as well as country fixed effects and a constant (not reported). All variables are defined in Appendix B. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1%-, 5%-, and 10%-level, respectively.

Dep. Variable:	IR ranking		
	(1)	(2)	(3)
IR employees	**0.3943*** **		
	(6.835)		
IR remuneration		**0.1126*** **	
		(2.886)	
IR budget			**0.0713***
			(1.784)
Firm size	0.1415***	0.1330**	0.2273***
	(4.466)	(2.603)	(5.475)
ROE	0.0739***	0.1236	0.0289
	(5.070)	(1.409)	(0.443)
Leverage	-0.0053*	-0.0020	-0.0071
	(-1.727)	(-0.397)	(-1.614)
R&D/TA	-0.4510	-3.3668	-2.2651
	(-0.555)	(-1.346)	(-1.423)
Intangibles/TA	0.5150***	0.2682	0.5621
	(2.738)	(0.607)	(1.603)
CapEx/TA	1.0764	0.4246	1.2479
	(1.355)	(0.247)	(0.524)
U.S. cross-listing	0.3506***	0.3568*	0.3268**
	(3.048)	(1.946)	(2.163)
Firm age	-0.0010	0.0045	-0.0012
	(-0.672)	(1.624)	(-0.602)
Ownership largest investor	-0.1626	-0.3475	-0.1610
	(-1.236)	(-1.293)	(-0.665)
Stock return	0.0848***	0.1777**	0.0639
	(2.928)	(2.231)	(1.082)
Conferences	0.0076***	0.0121**	0.0070*
	(2.949)	(2.226)	(1.781)
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Index FE	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Observations	2,005	433	637
R-squared	0.446	0.410	0.431

Table 9: Head of Investor Relations background and IR rankings – German firms

This table reports coefficients from regressions of our measure of investor relations quality, *IR ranking*, on background characteristics of German firms' Heads of IR. *IRO tenure* is the number of years the head of IR has held the position, *Conference call participant* indicates whether the Head of IR speaks during the firm's conference call, *Prior analyst experience* indicates whether they previously worked as a sell-side analyst, *MBA* indicates whether the head of IR holds an MBA degree, and *Common law university* whether they hold a degree from a university in a country of common law origin. Coefficients on Firm size, ROE, Leverage, R&D/TA, Intangibles/TA, CapEx/TA, Firm age, Ownership largest investor, U.S. cross-listing, Conferences, and Stock return are not tabulated. All regression specifications include year, industry, and stock index fixed effects, and a constant (not reported). Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1%-, 5%-, and 10%-level, respectively.

Dep. Variable:	IR ranking				
	(1)	(2)	(3)	(4)	(5)
IRO tenure	0.0185*				
	(1.725)				
Conference call participant		0.1300			
		(1.249)			
Prior analyst experience			0.2450		
			(1.648)		
MBA				**0.2527****	
				(1.988)	
Common law university					**0.2211***
					(1.727)
Controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Index FE	Yes	Yes	Yes	Yes	Yes
Observations	1,070	1,110	875	810	633
R-squared	0.232	0.231	0.259	0.259	0.301

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centre for financial research
cfr/university of cologne
albertus-magnus-platz
d-50923 cologne
fon +49(0)221-470-6995
fax +49(0)221-470-3992
kempf@cfr-cologne.de
www.cfr-cologne.de