The Supply and Effectiveness of Investor Relations in Insider- vs. outsider-oriented Markets

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ABSTRACT

Using annual survey-based investor relations (IR) data for a panel of European companies, we document that the supply and effectiveness of IR varies with country- and firm-level demand. Relative to their industry peers, firms from insider-oriented countries have larger IR staff, which predicts better IR rankings. Better IR is associated with greater visibility, information assimilation, and valuation, with visibility and assimilation being significantly greater for firms from insider-oriented countries. Within such countries, firms with greater outsider orientation have higher capital market benefits. Furthermore, using MiFID II as a shock to analyst coverage, we find an incrementally larger association between IR and visibility in insider-oriented countries post 2017. Overall, the evidence suggests that the supply of IR in insider-oriented markets has reached a high level, acting as a viable mechanism to improve firms' information environment. However, within those countries IR demand still varies significantly, with outsider-oriented firms showing greater IR effectiveness.

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

JEL Classifications: G14; M41

1. Introduction

In increasingly globalized capital markets, public companies must communicate effectively with a broadening set of investors and information intermediaries. Such communication entails, for example, the timely dissemination and clarification of mandated and voluntary disclosures as well as facilitating access to management during conference calls, non-deal roadshows, and other private meetings. These tasks fall under the purview of the investor relations (IR) function.[1] The literature finds a positive effect of IR on firm visibility, information assimilation, and ultimately valuation. Yet, most of the evidence is based on U.S. firms (e.g., Bushee and Miller 2012; Kirk and Vincent 2014; Chapman et al. 2019), U.S. cross-listings (Reiter 2021), or large global firms (Karolyi et al. 2020). Whether and how IR varies across jurisdictions remains largely unaddressed, despite being a pressing issue for 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 that includes survey-based rankings of quoted companies by industry-year as well as IR staff size to measure IR quality and investment in a large panel. Second, our dataset includes firms from various European countries, enabling us to examine both cross- and within-country variation in IR. Due to deeply rooted cultural and legal differences, European countries still differ substantially in ownership concentration (e.g., Iliev et al. 2015; Aminadav and Papaioannou 2020). We refer to institutional environments historically geared towards minority shareholders, such as the U.K., as outsider-oriented markets, and those geared towards controlling shareholders, such as Germany, as insider-oriented markets. The latter tend to have weaker institutional factors, e.g., less mandatory disclosure, investor protection, regulatory oversight and enforcement (Leuz et al.

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[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).

2003; La Porta et al. 2006; Djankov et al. 2008; Spamann 2010; Christensen et al. 2016; Isidro et al. 2020), and more insider communication to reduce asymmetric information between managers and shareholders (Ball et al. 2000). Despite significant regulatory convergence between the two groups, e.g., through the E.U.-wide adoption of IFRS and the Market Abuse Directive, cross-country differences in capital market outcomes, such as liquidity, have persisted or even widened (Christensen et al. 2016). The question we address is whether IR, as a voluntary market mechanism, varies between insider-oriented markets and more outsider-oriented ones.

We consider two competing hypotheses for IR supply and effectiveness across countries. According to the *complementarity hypothesis*, IR supply will be higher and more effective in countries with greater outsider orientation where the demand for investor communication is presumably higher, while according to the *substitution hypothesis*, IR substitutes for weaker capital market institutions, implying a higher and more effective supply of IR in insider-oriented countries. The substitution hypothesis suggests that IR can make a bigger difference for firms in insider-oriented countries – where outsiders tend to bear enhanced information risks – if it acts as a substitute for the relatively weaker home-country financial market institutions. Weaker institutions and more insider-orientation leave opportunities for firms to signal their commitment to higher transparency and standards of investor communication (Doidge et al. 2007), thereby lowering information risk for financial stakeholders. Therefore, we argue that the effectiveness of IR – i.e., the ability to attract or retain analysts and investors, reduce information asymmetry, and affect firm value – can be stronger in insider-oriented countries, especially for firms accessing global financial markets.[2] The complementarity hypothesis however suggests that the relatively

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[2] We provide examples of ways through which IR can be more effective in insider-oriented countries. In terms of disclosure, firms can stand out by providing timely and complete access to their annual reports, earnings slide decks, etc. on their website, which can be more beneficial in countries with higher disclosure processing costs (McClure et al. 2021). In terms of interactions with investors, firms from insider-oriented countries can adopt IR as their global

low demand of firm outsiders for communication as well as concerns of misinformation may limit firms' abilities to fully obtain the informational and valuation benefits of IR in insider-oriented countries. For example, outsiders might be concerned that insiders use IR as cheap talk to bolster liquidity and facilitate a more favorable exit for themselves (Hong and Huang 2005). Given the two competing hypotheses, we leave the relative effectiveness of IR in insider- vs. outsider-oriented markets as an open question.

Our sample consists of annual survey-based within-industry rankings and scores of quoted companies from 13 European countries based on the perceived quality of their investor relations. The surveys are run by Extel, which merged with Institutional Investor in 2018. Respondents include a large cross-section of buy-side and sell-side institutions, which rate firms' IR on a scale of 1 ('average') to 5 ('excellent'). We refer to the mean rating as IR score. Rankings are based on summed ratings weighted by buy-side respondents' assets under management or sell-side respondents' own rankings from the previous year. They are akin to the widely used Institutional Investor sell-side analyst ratings (see Hong and Kubik 2003). We also obtain data on IR staff size from Extel. The sample covers 4,965 firm-years (by 1,530 firms) over the fiscal years 2014-2018.

Empirically, we use principal component analysis to combine country characteristics that capture capital markets' degree of insider orientation: ownership concentration measured at the country-year-level, stock market participation (i.e., the percentage of the population owning shares in the equity market), and the number of actively managed equity mutual funds scaled by GDP per capita, all of which we consider as proxies for country-level demand for IR. The first factor loads positively on ownership concentration and negatively on the other two measures. In our sample,

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language to attract foreign investors and analysts while maintaining ties with domestic investors. This cultural duality, which can be facilitated, for example, by hiring IR officers that have prior schooling or work experience in outside-oriented markets, can help firms maximize their visibility and information assimilation.

the U.K. is the most outsider-oriented market, and Portugal the most insider-oriented. We compare our factor to those from Isidro et al. (2020) and find it to be very highly correlated with both their financial reporting quality factor and their second country institutional factor that captures investor rights, securities regulation, capital market size, and legal origin. Hence, while parsimonious, our own factor broadly captures fundamental differences among European countries that explain the relative insider-orientation of their capital markets. In the online appendix, we replicate our tests using the factors from Isidro et al. (2020).

To test our hypotheses regarding IR supply and compare the level of IR across countries, we regress IR staff size, investor conferences attended, analyst/investor (AI) days organized, and standardized IR industry rankings on our measure of market insider orientation. We control for industry and year fixed effects and for time-varying firm characteristics (e.g., performance, size). We find that staff size is significantly larger in insider-oriented countries. For example, holding constant firm characteristics, the average German firm has 25% more IR staff than the average U.K. firm. We also find a positive association between the number of investor conferences attended (but not AI days organized) and market insider orientation. In terms of IR quality, we find that firms from insider-oriented countries are more highly ranked and that this, at least in part, is explained by higher IR staff size and more investor conferences. The evidence suggests the following. First, consistent with the substitution hypothesis, firms from insider-oriented markets invest more in IR and exhibit better IR rankings than their peers in outsider-oriented markets. This result echoes survey data from IR Magazine (2010), which attributes those differences to firms' greater ability to outsource some IR functions to their domestic network of brokerage houses and IR advisory firms in outsider-oriented markets. Second, firms that incur the costs of investing in IR improve their IR rankings, which indicates that the rankings indeed reflect the quality of IR.

Next, we examine the effectiveness of IR. Consistent with prior research, we focus on capital market outcomes that align with IR's fundamental goals of enhancing firm visibility (Bushee and Miller 2012) and information assimilation by analysts and investors (Chapman et al. 2019), facilitating interactions between management and investors (Kirk and Markov 2016), reducing information asymmetry and cost of capital, and ultimately maximizing firm value.

To test whether IR is effective and whether this effectiveness is different for insider- vs. outsider-oriented markets, we use panel regressions of the aforementioned capital market variables on IR rankings and control variables. We interact IR rankings with our proxy for market insider orientation and test for the significance of those interaction effects. Our regressions control for country, industry, and year fixed effects as well as firm characteristics that are likely correlated with both IR and capital market outcomes.[3] We also use entropy balancing to account for differences in firm characteristics between insider- and outsider-oriented countries as an attempt to further mitigate potential omitted variable bias and obtain qualitatively similar results.

We find a positive association of firms' IR rankings with both analyst following and institutional ownership (including foreign), which we collectively refer to as visibility. We further find an incrementally positive association between IR rankings and visibility for firms located in more insider-oriented countries. Regarding information assimilation, we find that IR rankings are significantly negatively associated with analyst forecast dispersion and error as well as stock return volatility. Moreover, the incremental association between IR ranking and information assimilation is significantly negative for firms located in more insider-oriented countries. We also find greater market-adjusted absolute three-day returns around conference presentations and analyst/investor days for firms with better IR, and again significantly more so in insider-oriented countries. Lastly,

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[3] Unless otherwise stated, we obtain similar results with IR scores instead of rankings (not tabulated).

in terms of firm valuation, we find that firms with better IR rankings have significantly lower cost of equity and higher Tobin's Q. Yet, for firms located in more insider-oriented countries, we find no significant incremental association, suggesting that firms in such countries may face a ceiling in terms of valuation benefits, as IR cannot fully overcome the limitations of their home institutions (Doidge et al. 2007).

Collectively, the above results indicate that, among European firms, IR is more strongly associated with visibility, information assimilation, and the informativeness of the disclosure milieu for those domiciled in relatively more insider-oriented markets. In addition, we disaggregate IR rankings into a 'public' component correlated with firm disclosure and a residual 'private' one (e.g., one-on-one meetings), and find both components to be associated with capital market benefits, irrespective of shareholder orientation. At a minimum, these tests indicate that our results are not solely driven by voluntary disclosure, but also by firms' efforts to reach out to investors.

Econometrically, we address two common issues in IR research. The main potential issue with the survey-based IR ratings is reverse causality. Investors and analysts may rate firms' IR more favorably because of their higher liquidity or performance. To address this issue, we perform a lead-lag analysis where we examine capital market outcomes in the year after the surveys. All our results hold under that specification.[4] The other potential issue is selection bias because IR is a firm choice. In untabulated tests, however, we find that our main results with IR rankings and scores still hold after controlling for staff size – i.e., the observable firm choice. Ultimately, we

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[4] In untabulated tests, we also find that our results hold for firms with negative stock returns and firms whose earnings fall short of analysts' consensus, which further reduces concerns that our results are merely a reflection of good performance. We also examine changes in IR ratings around additions to the MSCI World Index, which increase visibility and assimilation. Yet, we find no significant change in IR ratings for firms added to the index. Lastly, we find a significantly positive association between firm-level changes in IR rankings and changes in visibility. Collectively, those results partially alleviate concerns that our results are driven by reverse causality.

note that neither of our IR proxies should be subject to both issues. Nevertheless, we caution readers against drawing causal inferences from the results we document.

To supplement our results, we examine cross-sectional and time-series variation in the role of IR. The average level of IR across countries may hide significant within-country disparities. Even in insider-oriented countries, a considerable share of firms will rely on institutional investors as the marginal capital provider. We posit that those firms that are more outsider-oriented (e.g., as they rely more on capital markets for external financing or are more likely to be targeted by foreign investors based on size or index affiliation) can stand out from their domestic peers more strongly by tapping into a larger pool of analysts and investors. We find that firms from insider-oriented countries whose largest investor holds less than 25% of the stock have higher capital market benefits. Further, firms with high analyst coverage experience greater assimilation and greater information content of the disclosure milieu. We conclude that, in line with our theoretical underpinning, IR plays a stronger role for more outsider-oriented firms in substituting for the limited country-level institutional factors to reduce information asymmetry.

Regarding the time-series, we use the Markets in Financial Instruments Directive (MiFID) II as a pan-European negative shock to firms' analyst coverage (Fang et al. 2020; Guo and Mota 2021). If pre-regulation analyst coverage reflects firms' equilibrium level of visibility, then MiFID II is a shock to IR demand because firms must compensate the loss of coverage to maintain their visibility. That is, MiFID II potentially exacerbates the need for the substitution effect of IR. We find that firms with better IR rankings and with at least one high-level manager dedicated to IR enjoy relatively greater visibility in insider-oriented markets after MiFID II. This result is consistent with IR acting as a buffer against exogenous loss in analyst coverage, especially in countries that are more susceptible to the shock.

Our paper contributes to the literature on investor relations. While prior research focuses primarily on the U.S., we offer new insights based on a European cross-country setting. By documenting that IR supply is greater and more effective in more insider-oriented countries, our evidence suggests that firms use IR to partly substitute for limited home-country capital market institutions and thus overcome structural visibility constraints (Bushee and Miller 2012; Kirk and Vincent 2014) and disclosure processing costs (Chapman et al. 2019). The results support theory from Doidge et al. (2007) and suggest that IR is a credible commitment to greater transparency (e.g., Leuz and Verrecchia 2000). Our evidence also echoes the literature that supports the bonding hypothesis for U.S. cross-listings. That is, the capital market benefits of IR accrue most strongly to firms from countries with more insider orientation (e.g., Hail and Leuz 2009).

Our study complements Karolyi et al. (2020), who also examine IR in a cross-country setting. They find that greater IR activity 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. Interestingly, our results show that IR quality and investment are significantly associated with Q in countries with strong shareholder protection and greater disclosure. The fundamental differences in sample and focus of the two papers can explain the seemingly contradictory results. Karolyi et al. (2020) have more cross-country variation than we do, but much less within-country variation as their survey data includes firms from a wide spectrum of countries like Bahrain and the U.S., but with only a handful of respondents for many countries. In contrast, our paper compares firms *across* as well as *within* countries.[5] By focusing

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[5] With 773 responses from across 59 countries, mainly from the Americas and Asia Pacific, Karolyi et al. (2020) have a significant cross-section of data for one year, lacking both time-series and within-country variation. Their detailed questionnaire allows for granular descriptive data on several IR facets, like Brown et al. (2019). 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 survey data drawn from investors and analysts and supplement it with data on staff size. This survey data is available for numerous European firms of different sizes that account for the bulk of their countries' market capitalizations.

on Western Europe, we limit variation in regulation and financial reporting standards and instead focus on cross-country variation due to historical differences in outside shareholder orientation. Furthermore, we examine a broader spectrum of capital market outcomes, particularly outcomes that are more directly related to IR, such as analyst coverage and forecast properties.

Lastly, our results contribute to the limited research examining IR under different regulatory regimes. Kirk and Vincent (2014) find that U.S. firms with better IR successfully managed the transition from pre- to post-Regulation Fair Disclosure (Reg FD). Likewise, we provide evidence on the potential usefulness of IR around the passage of MiFID II in terms of preserving firm visibility. Thereby, we add to the emerging literature on MiFID II (Fang et al. 2020; Guo and Mota 2021) by showing that the declining visibility of E.U. firms varies across countries (depending on insider orientation) and across firms (as a function of IR).

2. Data and Descriptive Statistics

2.1. Sample and IR variables

Our main sample consists of publicly listed firms from 13 European countries for which we obtain data on IR rankings and scores as well as IR staff size from Extel[6] for the fiscal years 2014 to 2018. The sample consists of 4,965 firm-years. We retrieve accounting, stock price, and ownership data for all firms from Thomson Reuters Worldscope, Datastream, and Eikon, respectively.

Our main variable of interest, *IR ranking*, is a measure of IR quality based on surveys among buy-side and sell-side firms conducted annually by Extel between February and May. Thousands of buy-side and sell-side professionals 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

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[6] Extel was acquired from Thomson Reuters by WeConvene in 2014, and by Euromoney Institutional Investor in 2018. London-based Extel has conducted surveys among investment professionals since 1974. For more information, see https://www.extelsurveys.com/about/.

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 then ranks the relative IR quality of all firms across 30 pan-European industries based on the total weighted votes they get. Appendix A reports the weights and industries. 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. 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 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.

Since rankings are a function of the number of voters and the weight assigned to those voters, we also examine mean IR scores on a 1-5 scale. Scores should capture "pure" IR quality and level the playing field across countries, industries, and firms of different sizes. However, they do not exhibit as much variation as rankings, and can be skewed for small firms with very few voters. Nevertheless, for robustness purposes, we take advantage of the data to measure IR quality in different ways. In Appendix A, we provide an illustrative example of how rankings are determined and how we compute IR scores.

Lastly, we compute IR staff size based on the number of individuals that Extel lists as being responsible for or just working in IR for each firm-year, if any. IR staff allows us to proxy for firms' investment in IR to measure the level of IR irrespective of investor's perceptions.

2.2. Country-Level Insider Orientation

Despite 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 contrasts with 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 characteristics such as the legal regime (Glaeser and Shleifer 2002).

Conceptually, we are interested in capturing the extent to which European markets are primarily geared towards larger domestic blockholders versus a more diffuse and possibly international shareholder base. Empirically, our interest is not in isolating any specific country characteristics. Instead, given the high correlations among country-level institutions (Isidro et al. 2020), we use principal component analysis and combine the following three variables to measure country-level insider orientation: ownership concentration measured at the country-year-level, stock market participation (i.e., the percentage of the population owning shares in the equity market, as per Grout et al. 2009), and the number of actively managed equity mutual funds (retrieved from the Lipper Fund Research Database) scaled by GDP per capita, all of which we consider as proxies for country-level demand for IR. Specifically, higher ownership concentration reflects insider orientation, whereas higher stock market participation and funds/GDP reflect

higher outsider orientation. We thus multiply stock market participation and funds/GDP by -1. The

first factor loads positively on all three measures.

In Table 1, we provide country-level descriptive statistics. Mean insider orientation varies

from -1.63 in the U.K. to 2.98 in Portugal. We also provide founding years of national IR

associations. The U.K.'s IR Society was founded first in 1980, consistent with IR starting as an

Anglo-Saxon practice (Marston 2004), and Portugal's IR Forum last in 2009.

3. IR Levels

3.1. Hypothesis

We expect the demand for IR to arise endogenously over time as a function of countries' historical

inside vs. outside shareholder orientation. We consider two competing hypotheses for the supply

of IR in insider-oriented countries, which are characterized by weaker financial market institutions

(e.g., less mandatory disclosure and minority shareholder protection) and insider communication

as a means of reducing asymmetric information between shareholders and managers (e.g., Ball et

al. 2000). According to the *substitution hypothesis* IR substitutes for country-level financial market

institutions, implying a higher supply of IR in insider-oriented countries where ownership is more

concentrated and institutions are weaker. This hypothesis suggests that analysts as well as stricter

disclosure duties themselves fulfill the informational needs of institutional investors. For example,

firms can rely on brokerage houses to facilitate the organization of investor-management meetings,

thereby eschewing the need to internalize IR. This mechanism is especially true for foreign

investors, who may prefer to interact with analysts from their own markets. Indeed, in Europe,

many U.K.-based analysts cover continental firms (Bae et al. 2008). Furthermore, as reporting

standards are more strictly enforced in outsider-oriented countries (Christensen et al. 2013), IR

may play a more targeted role in those markets, whereas firms from insider-oriented countries rely

more on IR to enhance disclosure quality and credibility. Such a substitution effect would be consistent with Lundholm et al. (2014) who document that U.S. cross-listed firms that are more distant from the U.S. along various dimensions provide higher quality disclosures.

Alternatively, according to the *complementarity hypothesis* IR supply will be lower in insider-oriented countries where ownership is less diffuse and demand for investor communication is presumably lower. The mechanism is similar to the confirmation hypothesis from Ball et al. (2012), according to which voluntary disclosure complements higher-quality financial reporting. Under these conditions, IR may play a limited role if private communication fulfills owners' primary information needs (Ball et al. 2000). Furthermore, insider-oriented financial markets also have fewer local sell-side analysts (Tan et al. 2011) and thus higher structural visibility constraints for the average firm. Overall, we leave the question of whether IR supply is (quantitatively and qualitatively) different between insider- and outsider-oriented countries as an empirical one.

H1: The level of IR does not vary with country-level insider orientation in capital markets.

3.2. Research Design

To test H1, we use the following OLS regression model:

$$IR\ supply = \beta_1 * Insider\ orientation + \sum_k\beta_k * Control_k + Fixed\ effects \qquad (1)$$

where IR supply is either *IR staff*, *Conferences*, *AI days,* or *IR ranking*. The variables *IR staff* and *IR ranking* are as described in Section 2. The other two variables measure the frequency of investor conferences attended, and analyst-investor days organized by the firm as per Capital IQ. We choose those events because the decision to participate in or organize them is a central role of firms' IR departments, and thus can supplement IR staff size in measuring the supply of IR. Fixed effects correspond to industry and year fixed effects. Note that in all regressions, we take the natural logarithm of one plus *IR staff*, *Conferences*, and *AI days*.

Throughout all our analyses, we control for a firm's age (i.e., years since 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 the book value of common equity), profitability and performance (i.e., ROE and annual buy-and-hold stock return), and size (i.e., the natural logarithm of total assets). 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 2021). 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. Ownership is measured at the first tier and refers to the end of the first quarter of each year. Accounting data is from the Thomson Reuters Worldscope database, IPO dates and ownership data are collected from the Thomson Reuters Eikon database, and data on cross-listings is obtained from the Eikon and Datastream databases. Appendix B provides detailed variable definitions and Table 2 reports summary statistics for the full sample.

All regressions include year fixed effects to account for unobserved heterogeneity, which is constant across firms. Model (1) also includes Datastream ICB supersector fixed effects to account for time-invariant industry-specific heterogeneity. We do not include country fixed effects in Model (1) as they would absorb most of the variation in *Insider orientation*, which would no longer capture first-order cross-country differences in IR supply.

3.3. Results

Table 3 reports our tests of cross-country variation in the supply of IR. In column 1, the dependent variable is *IR staff*. The coefficient on *Insider orientation* is positive and significant, in line with the substitution hypothesis, according to which firms from insider-oriented countries will invest

more in IR to make up for the weaker institutional ecosystem in their home country (IR Magazine 2010). In column 2, the dependent variable is *Conferences* and the coefficient on *Insider orientation* is also positive and significant. The magnitude of the coefficients in columns 1 and 2 indicate that, ceteris paribus, the average German firm will have about 25% more IR staff and will attend 42% more conferences than the average U.K. firm, respectively. In contrast, there is no significant association between analyst-investor day frequency and country-level insider orientation, as per column 3. In column 4, the dependent variable is *IR ranking*. The coefficient on *Insider orientation* is positive and significant, indicating that firms from insider-oriented markets are better ranked, on average, than their industry peers from outsider-oriented markets. Lastly, we regress *IR ranking* on *IR staff*, *Conferences*, and *AI Days*, and report the results in column 5. The coefficients on *IR staff* and *Conferences* are positive and significant. Hence, accounting for firm characteristics, firms that invest more in IR are better ranked than their industry peers. This result also suggests that IR rankings are not just merely driven by, e.g., past stock market performance or firm size. Rather, firms' investments in IR appear to pay off, and firms in markets with relatively weak institutions invest more in IR, consistent with IR substituting for weak institutions.

4. IR Effectiveness

4.1. Hypothesis

Our next hypothesis refers to how IR effectiveness – i.e., the extent to which IR is associated with benefits to the firm in terms of greater visibility, information assimilation, and valuation – varies based on a country's insider orientation. We assume that across countries, many firms rely on financial markets as a source of external financing and thus on institutional investors as their marginal capital providers. This assumption is consistent with the rise in institutional ownership across developed countries (e.g., Aggarwal et al. 2011). In line with our substitution hypothesis

derived in Section 3.1, we expect firms domiciled in countries with historically weaker institutions – e.g., and lower levels of (prescribed) transparency and minority investor protection – to attract outside capital by engaging in costly IR, which may serve as a credible signal (Merton 1987; Leuz and Verrecchia 2000) of committing to enhanced standards of communicating with investors and other financial stakeholders. More specifically, consistent with the model by Doidge et al. (2007), we expect firms to incur the costs of increasing their level of transparency to overcome the weaknesses of their home-country institutions and bond themselves to lower levels of asymmetric information and moral hazard (both hidden action and hidden information). Thus, investments in IR represent agents' bonding costs in the spirit of Jensen and Meckling (1976).

Incurring such IR-related bonding costs may be most beneficial for those firms in insider-oriented countries that interact more with analysts and minority investors and rely more on capital markets as a source of external financing (i.e., outsider-oriented firms). Positive signaling effects of IR in conjunction with an increasing interest of financial stakeholders (i.e., analysts and investors), especially foreign ones, may reinforce this mechanism in insider-oriented countries.[7]

Alternatively, continental European IR could face structural constraints in achieving the levels of financial market benefits that have been documented for the U.S., e.g., if the demand for IR remains lower in Europe. Domestic blockholders may obtain information via other channels and they may benefit from a lack of IR through, e.g., weaker external corporate governance. It is also 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

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[7] 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). Being able to attract new (foreign) analysts and investors may be a reinforcing mechanism in insider-oriented countries due to the positive signaling effect to other foreign financial stakeholders.

reporting and governance is already strong, as the results from Kirk and Vincent (2014), who contrast the U.S. pre and post Reg FD, as well as the results from Ball et al. (2012) suggest. Altogether, because of this tension, we formulate our IR effectiveness hypothesis in its null form:

> *H2: Investor relations exhibits the same association with firm visibility, information assimilation, and valuation irrespective of the country's insider orientation.*

4.2. Research Design

To test H2, we examine a set of outcome variables using the following OLS regression model:

$$Capital\ market\ outcome = \beta_1 * IR\ ranking + \beta_2 * IR\ ranking * Insider\ orientation + \beta_3$$
$$* Insider\ orientation + \sum_k \beta_k * Control_k + Fixed\ effects \qquad (2)$$

where fixed effects correspond to country, industry, and year fixed effects. We add country fixed effects, unlike in Model (1) but still include *Insider Orientation* as a standalone control variable because it exhibits some variation within countries. The control variables are the same as in Model (1), with two exceptions. First, we add a control for analyst following, except when it is the dependent variable. Second, we remove *Stock returns* as a control when *Tobin's Q* or *Cost of capital* is the dependent variable.

We build on prior research to measure IR effectiveness across four categories of capital market outcomes. 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. Accordingly, in our empirical tests, we examine analyst following and institutional ownership. We measure the latter by both percentage of shares held (*Institutional ownership_%*) and number of institutions (*Institutional ownership_#*). Additionally, we examine the percentage of shares held by foreign institutional investors (*Foreign institutional ownership_%*).

Besides visibility, IR's other goal is to ensure that the investment community understands the company's narrative. Following Chapman et al. (2019) and Reiter (2021), we next examine information assimilation using analyst- and market-based proxies. We examine absolute annual EPS forecast errors (*Forecast error*) and forecast dispersion as proxies for analysts' information assimilation. We use the standard deviation of daily stock returns (*Stock volatility*) as well as the illiquidity measure from Amihud (2002) as our proxies for market-based assimilation.

We also examine the information content of conference presentations and analyst/investor days, which should be a relatively clean measure of IR's contribution to capital market outcomes. Consistent with Kirk and Markov (2016), we compute market-adjusted three-day absolute returns (MAR) around those events. 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 denote the respective dependent variable *Investor meeting return*.

Finally, we test whether IR is associated with higher firm value (Bushee and Miller 2012; Reiter 2021), 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. We use the methodology described in Claus and Thomas (2001) to determine a firm's cost of equity capital. Appendix B provides detailed definitions of all variables. In each regression, we winsorize the dependent variables at 1st and 99th percentiles.

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 as well as volatility and illiquidity, (iii) positively associated with firm value, and (iv) negatively associated with the cost of equity capital. To test our hypothesis,

we examine the coefficient on *IR ranking * Insider orientation* (i.e., β_2), which measures the incremental association between IR and capital market outcomes for firms in countries with more insider-oriented markets relative to those in more outsider-oriented markets.

4.3. Results

4.3.1. 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 (2) without interacting IR with *Insider orientation*. Table 4 reports the results. In Panel A, we measure IR quality using standardized industry-level rankings. Column headers display the dependent variables. In columns 1, 3, and 4, the coefficient on *IR ranking* is positive and significant. Hence, on average, European firms with better IR rankings than their industry peers have higher analyst coverage, more institutional owners, and greater foreign institutional ownership. In columns 5 to 7, the coefficient on *IR ranking* is negative and significant. Hence, on average, European firms with better IR rankings than their industry peers have lower analyst forecast dispersion, lower forecast error, and lower stock return volatility. In column 9, the coefficient on *IR Ranking* is positive and significant. That is, firms with better IR have more informative conference presentations and analyst/investor days, on average. Lastly, the significantly positive (negative) coefficient on *IR ranking* in column 10 (11) 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.

In Table 4, Panel B, we replace *IR ranking* with *IR score*. Results are similar to Panel A: firms that have higher IR scores also have significantly higher institutional ownership, lower analyst forecast dispersion and 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 also allows us to check that the capital market benefits of IR do not merely reflect reverse causality or simultaneity. Table 4, 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) and Amihud illiquidity. Hence, by and large, the association between IR quality and capital market outcomes persists beyond the survey year.

To further mitigate reverse causality concerns, we perform additional untabulated tests. First, we consider it less likely that IR rankings would reflect investors' perceptions of the outcome variables among relatively poorly performing firms. Using both negative stock returns and firms falling short of analysts' earnings expectations as proxies for poor performance, we find that our conclusions hold in that subsample as well. Second, we examine firms that are added to the MSCI All Country World Index. Prior research uses MSCI additions as a shock to (foreign) institutional ownership (e.g., Bena et al. 2017). We find a statistically significant average increase in visibility and information assimilation, but no significant change in IR rankings around the 82 additions in our sample. Again, this result goes against reverse causality. Lastly, we examine the association between IR and visibility using changes instead of levels to further address reverse causality. Using a firm-level first-difference specification of Model (2), we find a positive and significant association between changes in IR and changes in firm visibility. Once again, this result partially alleviates concerns of reverse causality. However, we caution against drawing causal inferences from the analysis of IR and capital market measures at the firm-level.

4.3.2. Hypothesis Test

Next, we test H2 estimating Model (2).[8] 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).

In Table 5, Panel A, we interact *IR ranking* with *Insider orientation*.[9] In column (1), the significantly positive coefficients on *IR ranking* and *IR ranking * Insider orientation* indicate that firms with better IR rankings enjoy higher visibility, and significantly more so in insider-oriented countries. Similarly, in columns (2) and (3), the coefficients on *IR ranking* and *IR ranking * Insider orientation* indicate a significant association of IR with information assimilation and the information content of the disclosure milieu, and incrementally so in insider-oriented countries.[10] In columns (4) and (5), the significant coefficients on *IR ranking* indicate that firms with better IR rankings have higher firm value and lower cost of capital. However, the incremental effect for insider-oriented countries is statistically insignificant for cost of capital (column 5) and negative for Tobin's Q (column 4).[11] Hence, in terms of valuation, the net benefits of investing in IR are

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[8] In all 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.

[9] We also examine the interaction between IR and the institutional factors from Isidro et al. (2020). The results are generally consistent with our proxy for inside orientation for Factors 2, 3, and 4, whereas they go the other way for the first factor. However, 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.

[10] Statistically, when we use individual variables instead of principal components, the coefficient on *IR ranking * Insider orientation* is significant for analyst following, institutional ownership, forecast dispersion, forecast error, volatility, and illiquidity (not tabulated). As an example of the economic magnitude, a one-standard deviation in IR ranking is associated with 2.23% greater institutional ownership and 27% more analyst coverage for the average German firm relative to 0.07% and 16% for the average U.K. firm.

[11] We obtain similar results with IR scores instead of rankings and in a lead-lag specification (untabulated for brevity). When we regress capital market outcomes on IR staff size, we find a positive and significant baseline effect for visibility, information content of the disclosure milieu, and Tobin's Q. However, none of the interaction terms with

positive but relatively lower for firms in insider-oriented countries. This result suggests that firms from insider-oriented countries still face a ceiling in terms of valuation benefits because of the country-level institutional environment, consistent with Doidge et al. (2007).[12]

While we control for many firm characteristics and include various fixed effects, firms may differ across countries in a way that our research design cannot fully address. To mitigate concerns of omitted variable bias, we use entropy balancing (Hainmueller 2012) to "match" firms between insider- and outsider-oriented countries. Using the sample median as a cutoff to separate the two groups, entropy balancing allows us to weight observations in the "control" sample (i.e., outsider-oriented countries) so that the means and variances of firm characteristics are equal to those of the "treatment" sample (i.e., insider-oriented countries). In untabulated results, we report the distribution of the variables on which we balance the sample before and after entropy and confirm that balance is achieved at the first and second moments for all covariates. In Panel B, we replicate Panel A with two differences: instead of using a continuous measure of insider orientation, we use the dummy *High insider orientation* for above-median observations, and observations below the median are weighted according to the entropy balance. In brief, the results are qualitatively similar to those based on the unbalanced sample and support our conclusions.

Overall, based on the results in Table 5, we reject the null of H2 for visibility, information assimilation, and information content of the disclosure milieu. The association between IR quality and those capital market outcomes is significantly greater in countries with more insider-oriented markets. This evidence is consistent with IR helping firms attract more analysts and investors and

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Insider orientation is significant, except for cost of capital, but in the wrong direction. These results suggest that firms with greater resources have more visibility and can organize more A/I days or attend more conferences. However, unlike IR quality, IR investment is not associated with incremental informational benefits in inside oriented markets.
[12] For example, no matter how informative IR supplemental disclosures may be, they cannot fully overcome outside investors' discounting of weaker enforcement by regulators or auditors.

improve their information environment even more effectively when the domestic market does not provide as much support to achieve those outcomes, which supports our substitution hypothesis. However, we do not observe incremental valuation premia in those markets.[13]

5. Additional Tests

In this section, we examine whether the differences in IR effectiveness between insider- vs. outsider-oriented markets vary within IR dimensions, countries, and time. First, we decompose IR into its public and private components. Second, we examine within-country variation in firms' potential benefits from IR. Third, we use the adoption of MiFID II as a shock to the information environment of European firms.

5.1. Decomposition of IR Into Its Public and Private Components

IR typically consists of a public component (i.e., primarily disclosure quality) and a private component (e.g., one-on-one meetings). The separate examination of those two components can help better understand what IR is substituting for in insider-oriented markets. 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; Yoon 2021). 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

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[13] To further investigate why firms from insider-oriented countries do not enjoy incremental valuation benefits, we examine alternative measures of firm valuation: stock returns and the price-to-earnings (P/E) ratio. In untabulated analyses, we find that IR is positively associated with stock returns and the P/E ratio, and significantly more so for firms in insider-oriented countries. We interpret this result as evidence that firms from insider-oriented countries can use IR beneficially in terms of pricing of contemporaneous news, but that the results do not necessarily translate into a sustained valuation premium (or take time and effort to do so) – suggesting that those firms would need to consistently outperform in IR to surpass their peers from outsider-oriented countries.

(Christensen et al. 2013). Ex ante, whether public and private IR vary in their level and/or effectiveness across countries is unclear. On the one hand, in countries that are more outsider-oriented, high quality disclosure requirements likely leave limited room for public IR to make a difference. Hence, we would expect private IR to play a bigger role there. On the other hand, in countries that are more insider-oriented, investors may have limited trust in public disclosure – with or without IR – and may instead resort to private communication channels.

To parse out public and private IR, we first regress *IR ranking* on several proxies for disclosure: *A/I days*, *Conferences*, *Earnings calls*, *Guidance*, *URL count investor*, and *U.S. cross-listing*. *A/I days* is the number of analyst-investor days organized by the firm, *Conferences* is the number of investor conferences where the firm makes a presentation, *Earnings calls*, is the number of earnings conference calls held by the firm, and *Guidance* is the number of times the firm issues corporate guidance, all as recorded in Key Developments from Capital IQ.[14] We obtain *URL count investor* from Boulland et al. (2021). The proxy we use measures the number of unique URLs that mention "investor". We take the natural logarithm of one plus the value of all variables defined above. Although far from comprehensive, the variables proxy for disclosure amount and quality and should capture, to a significant extent, the "public" component of IR. In Appendix C, Table A2, the results indicate that all variables are positively and significantly associated with *IR ranking* and jointly explain 32.6% of its variation. We then label fitted values from the regression as *Public IR* and the residuals as *Private IR*.

In a second stage, we then replace *IR ranking* with its two orthogonal components *Public IR* and *Private IR*. Table 6 reports the results, where we replicate the panel structure of Table 5. In

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[14] Prior research shows the importance of investor conferences and analyst/investor days as a setting for firms to interact with analysts and investors (e.g., Bushee et al. 2011, Green et al. 2014, Kirk and Markov 2016). Furthermore, conference participation is an integral part of IR (Reiter 2021). Cao et al. (2017) document cross-country differences in the effect of guidance on the cost of capital.

columns 1, and 4, both *Public IR* and *Private IR* are significantly associated with visibility and firm value in outsider-oriented countries. In contrast, in columns 2 and 5, only *Private IR* is significantly associated with information assimilation and cost of capital in those countries. In columns 1, 2, and 3, both *Public IR* and *Private IR* are incrementally associated with visibility, information assimilation, and the informativeness of the disclosure milieu in insider-oriented countries. Overall, the results in Table 6 further support the substitution hypothesis. That is, IR partially compensates for country-level disclosure quality, both via enhanced voluntary disclosure and private interactions with investors – although we do not directly observe the latter component.

5.2. Within-Country Variation in Firm-Level Insider Orientation

To take advantage of the two-dimensional cross-section in our data (i.e., a large cross-section of firms within different countries), we test if – within countries – some firms experience greater capital market benefits associated with IR. Specifically, we are interested in firms from insider-oriented countries that are more likely to be outsider-oriented, e.g., because they compete for capital on a broader, perhaps more international, basis. Accordingly, we partition the sample along two dimensions. First, we create the indicator *No controlling shareholder* for firms whose top shareholder owns less than 25% of the shares. As an alternative measure, we rank firms by country in terms of foreign institutional ownership (FIO). Second, we rank firms by country in terms of analyst coverage, and create an indicator for those in the top quartile labeled as *High coverage*. We then re-estimate Model (2) by interacting *No controlling shareholder* (alternatively, *High FIO*) and *High coverage* with *IR ranking*, *Insider orientation*, and *IR ranking * Insider orientation*.

 Table 7 reports the results. In Panel A, the coefficient on *IR ranking * Insider orientation * No controlling shareholder* is significant and positive in columns 1 and 3 (i.e., higher visibility and investor meeting return), and negative in columns 2 and 5 (i.e., greater information

assimilation and lower cost of capital). Hence, IR is associated with several incremental capital market benefits in insider-oriented countries for firms with lower ownership concentration. When we examine FIO instead of ownership concentration in untabulated regressions, we find a statistically significant coefficient on *IR ranking * Insider orientation * High FIO* only for the dependent variable *Cost of capital*. That is, the cost of capital benefit of IR appears to accrue most significantly to firms in insider-oriented countries that have high foreign institutional ownership.

Since *High coverage* already proxies for visibility, in Panel B we focus on the other capital market outcomes as dependent variables. In column 1 (2), the negative (positive) and significant coefficient on *IR ranking * Insider orientation * High coverage* indicates that IR is even more strongly associated with information assimilation (the information content of the disclosure milieu) for firms with high analyst coverage in insider-oriented countries. In contrast, in columns 3 and 4, there appears to be no significant incremental association between IR and firm value for firms with greater analyst coverage. In all, the evidence in Table 7 suggests that firms that are more outsider-oriented within insider-oriented countries are the ones that tend to exhibit the strongest capital market benefits associated with IR. This evidence does not only point to significant within-country variation in the effectiveness of IR (and some of the factors that drive this variation), but it also helps explain the cross-country results presented earlier.

5.3. MiFID II

Our sample period includes the passage of MiFID II, one of the most significant changes in securities regulations in the E.U. in the last few years. We use this regulatory shock to further examine firms' ability to use IR as a substitute for market institutions. Indeed, by fundamentally altering sell-side research's business model,[15] the passage of MiFID II has led to a decrease in

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[15] MiFID II's most controversial change 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

analyst coverage for European firms (Fang et al. 2020; Guo and Mota 2021). In addition, anecdotal evidence suggests that European IROs have argued that "investors are harder to reach" post-MiFID II (IR Magazine 2019). MiFID II affords us with a valuable setting because it is a pan-European shock to firms' visibility. Furthermore, if pre-regulation analyst coverage reflects firms' desired level of visibility, MiFID II is indirectly a shock to IR demand as well. 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 increase 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).

Building on our research question, we examine whether the effect of MiFID II varies across firms and countries based on their level of IR and insider orientation, respectively. We focus on visibility because that is the most direct impact of MiFID II as documented in Fang et al. (2020) and Guo and Mota (2021). Given the evidence in our previous tests, we expect firms with better IR to absorb the effect of MiFID II (i.e., to lose relatively fewer analysts and investors) irrespective of their country. Put differently, for the average European firm we expect IR to act as a substituting mechanism that helps maintain firm visibility. The expected country-level effect is less clear because the literature is silent on cross-country variation in MiFID II's impact. On the one hand, MiFID II should be a stronger shock in insider-oriented countries because the local information environment is less able to absorb it, at least in the short run. For example, firms in insider-oriented countries are more likely to be covered by foreign analysts (Bae et al. 2008; Tan et al. 2011) and brokerage houses may find the cost of covering those firms too high after MiFID II. On the other hand, if the analyst market is more competitive in outsider-oriented countries, then resource-

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transparency around the pricing of those services, which brokers previously bundled with trade execution under "soft dollar" arrangements.

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constrained brokerage firms may decide to reduce their coverage in those countries to maintain a pan European presence.

To test whether MiFID II amplifies or mutes the cross-country variation in the association between IR and firm visibility, we augment Model (2) by adding an indicator, *MiFID II*, which is equal to one for the fiscal year 2018 in all countries except Portugal, Spain, Sweden, and Switzerland, and zero otherwise.[16] We interact the *MiFID II* indicator with *IR ranking (and score and staff)* and with *IR ranking (and score and staff) * Insider orientation*. Importantly, we lag the IR measures to avoid simultaneity.

Table 8 presents the results of our MiFID II test where the dependent variable is *Visibility*. The first noticeable result is that, in all four columns, the coefficient on *Insider orientation * MiFID II* is negative and significant. That is, firms with no (or low quality) IR from insider-oriented countries experience a significant drop in visibility, suggesting that the main effect documented by Fang et al. (2020) is stronger in those countries. However, in column 1, the coefficient on *IR ranking * Insider orientation * MiFID II* is positive and significant. Hence, firms from insider-oriented markets that are more highly ranked in IR pre-MiFID experience relatively more visibility after MiFID II. In column 2, the coefficient on *IR Score * Insider orientation * MiFID II* is not significant, suggesting that the effect is not coming from IR quality per se. In column 3, the coefficient on *IR staff * Insider orientation * MiFID II* is positive but not significant. However, in column 4, the coefficient on *IR staffed * Insider orientation * MiFID II* is positive and significant, where *IR staffed* is an indicator for firms with at least one IR staff member. That

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[16] 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 8 when we exclude the year 2017 (not tabulated). We consider firms from Portugal, Spain, Sweden, and Switzerland as not treated due to the relatively late adoption of MiFID II in those countries (see, e.g., https://www.engage.hoganlovells.com/knowledgeservices/news/eu-berates-12-countries-for-not-fully-implementing-mifid-ii).

is, if firms from insider-oriented countries had at least one high-level employee dedicated to IR before MiFID II, they absorbed the shock of MiFID II on firm visibility. Overall, the results in Table 8 lend further support to the substitution hypothesis.

6. Conclusion

This study provides new insights on cross-country and -firm variation in investor relations (IR) based on novel IR data for a large panel of firms from 13 European countries. We find that firms from insider-oriented countries (e.g., Germany), on average, have larger IR staffs than firms from outsider-oriented countries (e.g., the U.K.). Firms that are more highly ranked than their industry peers in IR exhibit greater capital market visibility, information assimilation, and valuation, with visibility and information assimilation benefits being significantly stronger in insider-oriented countries. We interpret this evidence as supporting the hypothesis that IR has greater substitution value in attracting analysts and investors and improving the information environment in a capital market environment where institutional factors are still geared towards more concentrated ownership. Yet, the absence of incremental valuation benefits is consistent with the average firm from insider-oriented countries not fully overcoming structural constraints in their home country (Doidge et al. 2007). Across firms, we find that, in insider-oriented countries, relatively more outsider-oriented firms exhibit a stronger association with capital market benefits, including cost of capital. This result is consistent with IR enabling firms in insider-oriented countries that compete for capital on a larger scale to stand out more clearly relative to their domestic peers. Lastly, we find that IR helped firms in insider-oriented countries to absorb the shock of MiFID II by mitigating its negative impact on firm visibility.

Altogether, our results indicate that higher IR quality may yield stronger informational benefits when capital markets have been more insider-oriented, even within a jurisdiction with

converging securities regulation. Thus, IR can act as a credible commitment to transparency (Merton 1987; Leuz and Verrecchia 2000). Our cross-sectional results indicate that both country and firm characteristics shape IR's effectiveness. 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.

Our results can pave way for future research on IR. Methodologically, future research may use more targeted settings to improve identification in terms of causality and isolating specific country-level characteristics that matter the most for IR. Second, while our results build on the early MiFID II literature, there is still much to learn about how regulation (MiFID II or not) interacts with IR. Lastly, while we focus on IR's longstanding goals to optimize investor dialogue in terms of financial information, IR's mandate has broadened in recent times to environmental, social, and governance (ESG) issues. Chapman et al. (2021) document the role of IR vis-à-vis governance issues in the U.S. While shareholder activism is still relatively rare in Europe, its frequency and impact vary with shareholder orientation. Furthermore, ESG has been added as a rubric in the latest Extel surveys. Hence, the degree to which IR helps firms respond to investors' ESG demands across countries strikes us as a promising extension of the literature.

Appendix A: Voting statistics and ranking methodology

Panel A of 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. Panel B reports the weighting scheme which is applied by Extel to votes from sell-side and buy-side firms. Votes from buy-side (sell-side) firms are weighted using European equity assets under management (brokerage ratings from the previous year). Panel C reports 30 pan-European industries which are used by Extel to rank the relative IR quality of all firms. Panel D provides an example of how Extel determines IR rankings and how we compute IR scores using the data shown in Panels A, B, and C.

Panel A: Votes

	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	6,520	319	260
Germany	8,104	336	241
Italy	3,221	179	137
Netherlands	1,753	146	101
Norway	741	69	44
Portugal	914	59	37
Spain	3,840	180	151
Sweden	997	70	57
Switzerland	2,693	165	148
United Kingdom	6,166	326	252

Panel B: Weights

Buy-side vote weights		Sell-side vote weights	
European Equity AUM	**Weighting**	**Previous Year Ranking in Sector**	**Weighting**
US$ 0-1bn	x1	1st to 5th	x20
US$ 1-3bn	x2	6th to 20th	x16
US$ 3-5bn	x3	11th to 20th	x12
US$ 5-10bn	x5	21st to 40th	x7
US$ 10-20bn	x7	41st upwards	x3
US$ 20-40bn	x10		
US$ 40-60bn	x14		
US$ 60-80bn	x18		
US$ 80-100bn	x24		
US$ 100bn+	x30		

Appendix A – continued

Panel C: 30 pan-European industries

Aerospace & Defence	Insurance	Retailers (Food)
Autos & Automotive Components	Leisure, Entertainment & Hotels	Retailers (Non Food)
Banks	Luxury Goods	Software & IT Services
Beverages	Media	Speciality & Other Finance
Capital Goods (inc. Eng & Mach)	MedTech & Services	Support & Business Services
Chemicals	Metals & Mining	Telcos. Equip./IT Hardware & Semis
Construction & Building Materials	Oil & Gas	Telecommunications Services
Food Manufacturers	Oil Services	Tobacco
Forestry, Paper & Packaging	Pharmaceuticals & Biotech	Transport
Household Products & Personal Care	Real Estate	Utilities

Panel D: Calculation of IR rankings

Firm	Voter	Rating
Company A	Buy-side Investor C ($US 50bn AUM)	4
Company A	Buy-side Investor D ($US 85bn AUM)	2
Company B	Buy-side Investor E ($US 35bn)	5
Company B	Sell-Side Analyst ranked #10th in B's sector	3

Extel calculates the total number of points received by the firm as Σ (Rating * Voter's weight). Hence, Company A will receive a total of 4 * 14 + 2 * 24 = 104 points whereas Company B will receive a total of 5 * 10 + 3 * 16 = 98 points. Accordingly, if A and B are in the same industry, A will be ranked higher. Alternatively, we calculate A and B's *IR Score* as (4+2)/2 = 3 and (5+3)/2 = 4, respectively, in which case B is ranked higher.

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
A/I days	The natural logarithm of 1 + the number of analyst-investor days held by the firm between the beginning of April of the previous year and the end of March of the current year.	S&P Capital IQ
CapEx/TA	Capital expenditures / Total assets.	Thomson Reuters Worldscope
Conferences	The natural logarithm of 1 + 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
Earnings calls	The natural logarithm of 1 + the number of earnings calls held by the firm between the beginning of April of the previous year and the end of March of the current year.	S&P Capital IQ
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 natural logarithm of 1 + 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 ranking	Ranking of firms' IR quality based on surveys conducted annually by Extel among buy-side and sell-side firms. Surveys are conducted between February and May.	Extel
IR score	The sum of IR "grades" (1-5) each multiplied by the respective number of voters divided by the total number of voters for each firm-year.	Extel

IR staff	The natural logarithm of 1 + the number of individuals listed by Extel as being responsible for or simply working in IR for each firm-year.	Extel
Leverage	Long-term and short-term debt / Common equity.	Thomson Reuters Worldscope
Number fund/GDP per capita	The number of actively managed equity mutual funds scaled by GDP per capita.	Lipper Fund Research Database
Ownership concentration	Ownership concentration is based on the variable *Ownership largest investor* and measures the mean ownership stake of the firms' largest investor per country-year	Thomson Reuters Eikon
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 market participation	The percentage of the population owning shares in the equity market	Grout et al. (2009)
Stock return	Annual buy-and-hold stock return calculated 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.	Thomson Reuters Datastream
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
URL count investor	The natural logarithm of 1 + the average number of the corporate website URL matching the keyword "Investor" calculated for the four calendar quarters starting at the beginning of April of the previous year and ending at the end of March of the current year (missing values are replaced by zero values).	Boulland et al. (2021)
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 and first-stage estimations

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

Table A1: PCA for insider orientation, 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 three proxies for *country-level demand for IR* (i.e., ownership concentration, stock market participation, and number funds/GDP per capita). 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 *visibility* variables (i.e., analyst following, institutional ownership, number of institutional owners, foreign institutional ownership). Panel C 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 insider orientation

Scoring coefficients (loadings)	Insider orientation
Ownership concentration	**0.6398**
Stock market participation * (-1)	**0.6510**
Number funds/GDP per capita * (-1)	**0.4085**
Eigenvalue	1.9980
Proportion	0.6660
Observations	4,965

Panel B: PCA for visibility

Scoring coefficients (loadings)	Visibility
Analyst following	**0.5126**
Institutional ownership_%	**0.4090**
Institutional ownership_#	**0.5464**
Foreign institutional ownership_%	**0.5210**
Eigenvalue	2.4808
Proportion	0.6202
Observations	4,965

Panel C: PCA for assimilation

Scoring coefficients (loadings)	Assimilation
Forecast dispersion	**0.5693**
Forecast error	**0.5666**
Stock volatility	**0.5548**
Amihud illiquidity	**0.2167**
Eigenvalue	2.0060
Proportion	0.5015
Observations	4,730

Table A2: First stage OLS estimate of the public component of IR

This table reports coefficients from cross-country regressions of our measure of investor relations quality, *IR ranking*, on six proxies for disclosure quality: *A/I days*, *Earnings calls*, *Conferences*, *Guidance*, *U.S. cross-listing,* and *URL count investor*. 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
A/I days	**0.1880*****
	(3.852)
Earnings calls	**0.2423*****
	(6.970)
Conferences	**0.3126*****
	(13.328)
Guidance	**0.0559***
	(1.823)
U.S. cross-listing	**0.3011*****
	(3.531)
URL count investor	**0.0328*****
	(2.758)
Year FE	Yes
Industry FE	Yes
Country FE	Yes
Observations	4,965
R-squared	0.326

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Table 1: Country-level summary statistics for the sample of 13 European countries

This table reports country-level 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. *Foundation year of IR society* is the year in which a country's IR society was founded. *Insider orientation* is the first factor from a principal component analysis of ownership concentration, stock market participation*(-1), and number funds/GDP per capita*(-1). See Appendix C, Table A1, for details on the principal component analysis. *Ownership concentration* is based on the variable *Ownership largest investor* and measures the mean ownership stake of the firms' largest investor per country-year. *Stock market participation* is the percentage of the population owning shares in the equity market, as per Grout et al. (2009). *Number funds/GDP per capita* is the number of actively managed equity mutual funds scaled by GDP per capita.

	N	Foundation year of IR society	Insider orientation	Ownership concentration	Stock market participation	Number funds/GDP per capita
Austria	144	1992	2.2626	0.4058	0.0296	0.0043
Belgium	173	1992	0.6711	0.2828	0.0723	0.0085
Denmark	132	1988	-0.2982	0.2182	0.1339	0.0038
France	667	1987	-0.4675	0.3133	0.1097	0.0295
Germany	870	1994	1.0601	0.2850	0.0432	0.0076
Italy	399	1989	2.4475	0.4118	0.0239	0.0027
Netherlands	187	1991	-0.7163	0.2062	0.1705	0.0019
Norway	112	1995	1.2063	0.3139	0.0730	0.0016
Portugal	86	2009	2.9839	0.4677	0.0150	0.0023
Spain	311	1991	1.2437	0.2905	0.0222	0.0097
Sweden	201	1995	-1.3594	0.1789	0.1970	0.0050
Switzerland	362	1992	-0.5707	0.2340	0.1624	0.0054
United Kingdom	1,321	1980	-1.6308	0.1570	0.1509	0.0190

Table 2: Summary statistics for the full sample

This table reports summary statistics for firm characteristics of the full sample including 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. All variables are defined in Appendix B.

	N	Mean	P25	Median	P75	SD
Amihud illiquidity	4,965	0.2525	0.0008	0.0046	0.0618	0.7512
Analyst following	4,965	2.2102	1.6094	2.3979	2.8904	0.8372
Analyst following - raw	4,965	12.1237	5.0000	11.0000	18.0000	8.0751
A/I days	4,965	0.1499	0.0000	0.0000	0.0000	0.3058
A/I days - raw	4,965	0.2278	0.0000	0.0000	0.0000	0.4837
CapEx/TA	4,965	0.0393	0.0106	0.0289	0.0523	0.0627
Conferences	4,965	1.0392	0.0000	1.0986	1.7918	0.9628
Conferences - raw	4,965	3.7343	0.0000	2.0000	5.0000	6.2986
Cost of Capital	3,427	0.0762	0.0585	0.0753	0.0933	0.0322
Earnings calls	4,965	1.0720	0.6931	1.0986	1.6094	0.5854
Earnings calls - raw	4,965	2.3700	1.0000	2.0000	4.0000	1.5427
Firm age	4,965	20.7265	8.0000	16.0000	25.0000	21.8498
Firm size	4,965	15.0816	13.7570	14.9470	16.2175	2.0738
Forecast dispersion	4,767	-5.3815	-6.1732	-5.4844	-4.7117	1.1186
Forecast error	4,763	0.0238	0.0035	0.0079	0.0189	0.0537
Foreign institutional ownership_%	4,965	0.2457	0.1245	0.2196	0.3456	0.1564
Guidance	4,965	0.9313	0.0000	1.0986	1.6094	0.6784
Guidance - raw	4,965	2.1251	0.0000	2.0000	4.0000	1.8563
Intangibles/TA	4,965	0.2249	0.0299	0.1569	0.3814	0.2188
Institutional ownership_%	4,965	0.4063	0.2110	0.3677	0.5824	0.2380
Institutional investors_#	4,965	5.2412	4.6821	5.3375	6.0307	0.9933
Number funds/GDP per capita	4,965	0.0124	0.0051	0.0080	0.0194	0.0091
IR ranking	4,965	0.0000	-0.5783	0.2184	0.7939	1.0000
IR ranking - raw	4,965	28.9351	11.0000	24.0000	42.0000	22.5923
IR score	4,965	3.7645	3.3000	4.0000	4.3333	0.8885
IR staff	4,965	0.9740	0.6931	1.0986	1.3863	0.5230
IR staff - raw	4,965	2.0524	1.0000	2.0000	3.0000	1.8232
Investor meeting return	4,965	3.0553	0.0000	0.9580	3.8881	5.0631
Leverage	4,965	1.0143	0.2446	0.5914	1.1989	5.2973
Ownership largest investor	4,965	0.2598	0.0968	0.1909	0.4040	0.2036
R&D/TA	4,965	0.0166	0.0000	0.0000	0.0137	0.0449
ROE	4,965	0.1261	0.0549	0.1148	0.1823	0.6884
Stock market participation	4,965	0.1008	0.0432	0.1097	0.1509	0.0575
Stock return	4,965	0.0656	-0.1290	0.0448	0.2226	0.3540
Stock volatility	4,965	0.0188	0.0137	0.0171	0.0219	0.0074
Tobin's Q	4,965	1.7980	1.0572	1.3642	1.9819	1.2577
URL count investor	4,965	1.6781	0.0000	1.2528	3.0325	1.6559
US cross-listing	4,965	0.0610	0.0000	0.0000	0.0000	0.2394

Table 3: IR supply and market insider orientation

This table reports the coefficients from regressions of the dependent variable *IR staff* in column 1, *Conferences* in column 2, *A/I days* in column 3, and *IR ranking* in column 4 on *Insider orientation*, i.e., the first factor from a principal component analysis of ownership concentration, stock market participation*(-1), and number funds/GDP per capita*(-1), along with the set of control variables. Column 5 reports the coefficients from the regression of the dependent variable *IR ranking* on *IR staff*, *Conferences*, and *A/I days*, along with the same set of control variables. All regression specifications include year and (Datastream ICB supersector) industry fixed effects, and a constant (not reported). Specification 5 additionally includes country fixed effects. 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.

Dep. Variable:	(1) IR staff	(2) Conferences	(3) A/I days	(4) IR ranking	(5) IR ranking
Insider orientation	**0.0839*****	**0.1301*****	**-0.0051**	**0.0376****	
	(12.599)	**(7.846)**	**(-1.236)**	**(2.570)**	
IR staff					**0.3174*****
					(7.076)
Conferences					**0.1091*****
					(5.154)
A/I days					**0.0423**
					(1.028)
Analyst following	0.0923***	0.2974***	0.0452***	0.3888***	0.3474***
	(5.800)	(9.403)	(5.656)	(11.964)	(11.029)
Firm size	0.1445***	0.1345***	0.0204***	0.1590***	0.0731***
	(16.945)	(7.421)	(4.499)	(10.295)	(4.725)
ROE	0.0149**	0.0111	-0.0074**	0.0161	0.0171
	(2.083)	(0.842)	(-2.440)	(1.294)	(1.136)
Leverage	-0.0006	-0.0025	0.0017	-0.0015	-0.0010
	(-0.474)	(-1.317)	(1.639)	(-0.910)	(-0.591)
R&D/TA	0.4265**	2.3483***	0.1704	0.5406	0.1408
	(2.204)	(3.616)	(1.291)	(1.588)	(0.395)
Intangibles/TA	-0.0809*	-0.0865	0.0596**	0.1572*	0.2057**
	(-1.695)	(-0.825)	(2.028)	(1.804)	(2.475)
CapEx/TA	0.2822***	0.2363	0.0828	0.1494	0.0482
	(2.707)	(1.469)	(1.540)	(0.921)	(0.277)
US cross-listing	0.1863***	0.4446***	-0.0550**	-0.0333	-0.1014
	(4.306)	(3.855)	(-2.130)	(-0.415)	(-1.324)
Firm age	0.0001	-0.0001	-0.0001	-0.0009	-0.0001
	(0.296)	(-0.064)	(-0.395)	(-0.982)	(-0.152)
Ownership largest investor	-0.2256***	-0.3991***	-0.1292***	-0.1846**	-0.1676*
	(-4.644)	(-3.453)	(-4.771)	(-1.987)	(-1.873)
Stock return	-0.0109	0.0784**	0.0320***	0.1859***	0.1890***
	(-0.769)	(2.459)	(2.821)	(5.394)	(5.721)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	Yes
Observations	4,965	4,965	4,965	4,965	4,965
R-squared	0.553	0.362	0.084	0.421	0.465

Table 4: IR effectiveness - Pooled cross-country evidence

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: IR ranking as measure of IR quality

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) Investor meeting return	(10) Tobin's Q	(11) Cost of capital
IR ranking	**0.2090*****	**0.0008**	**0.0539*****	**0.0058***	**-0.0961*****	**-0.0043*****	**-0.0005*****	**-0.0079**	**0.4921*****	**0.1522*****	**-0.0029*****
	(13.616)	**(0.184)**	**(4.270)**	**(1.653)**	**(-3.722)**	**(-2.835)**	**(-3.070)**	**(-0.509)**	**(5.018)**	**(5.184)**	**(-3.048)**
Analyst following		0.0704***	0.5614***	0.0690***	-0.3472***	-0.0111***	-0.0006***	-0.1634***	0.4947***	0.4294***	-0.0078***
		(9.938)	(19.180)	(12.190)	(-7.527)	(-5.915)	(-2.971)	(-7.023)	(3.523)	(7.854)	(-4.481)
Firm size	0.2716***	-0.0133***	0.2570***	0.0032	0.1368***	0.0020**	-0.0008***	-0.0949***	0.7229***	-0.3289***	0.0033***
	(24.814)	(-3.816)	(21.477)	(1.095)	(6.659)	(2.320)	(-6.331)	(-7.368)	(7.054)	(-11.896)	(4.018)
ROE	0.0808***	0.0012	0.0554***	-0.0002	-0.1514**	-0.0080*	-0.0013**	-0.0230**	0.0938	0.2617***	0.0005
	(4.393)	(0.451)	(3.731)	(-0.071)	(-1.974)	(-1.785)	(-2.271)	(-1.997)	(1.125)	(4.752)	(0.976)
Leverage	-0.0033	0.0005*	-0.0022	0.0002	0.0035	-0.0002	0.0001*	-0.0016	-0.0161	0.0021	0.0001
	(-1.236)	(1.716)	(-1.049)	(0.676)	(1.055)	(-0.543)	(1.796)	(-0.531)	(-0.602)	(1.280)	(0.421)
R&D/TA	0.5270**	0.0637	0.3268	0.0490	2.2637***	0.0437*	0.0198***	-0.6538	11.3137***	3.9352***	-0.0309
	(1.962)	(0.543)	(1.313)	(0.534)	(3.648)	(1.790)	(4.475)	(-1.608)	(3.054)	(3.775)	(-0.837)
Intangibles/TA	0.1004	0.0961***	0.0229	0.0626***	-0.4854***	-0.0145**	-0.0017**	0.1069	-0.1397	-0.3675**	-0.0005
	(1.346)	(4.491)	(0.437)	(3.382)	(-3.873)	(-2.535)	(-2.310)	(1.277)	(-0.309)	(-2.246)	(-0.103)
CapEx/TA	0.2643	-0.0693	0.3438***	0.0171	-0.5481	0.0135	0.0017	-0.2470	0.6158	0.1650	-0.0488**
	(1.347)	(-1.350)	(2.875)	(0.425)	(-0.771)	(0.333)	(1.095)	(-1.111)	(0.598)	(0.487)	(-2.203)
US cross-listing	-0.2207***	-0.0319*	-0.0022	0.0122	-0.0470	-0.0007	0.0008	0.2366***	3.2576***	0.3197***	0.0027
	(-3.778)	(-1.691)	(-0.048)	(0.729)	(-0.451)	(-0.135)	(1.280)	(4.630)	(4.010)	(2.918)	(0.611)
Firm age	-0.0009	-0.0005***	0.0008	-0.0005***	-0.0025**	-0.0001	-0.0000***	0.0003	0.0026	0.0008	-0.0000
	(-0.925)	(-2.819)	(1.531)	(-3.506)	(-2.313)	(-1.411)	(-2.892)	(0.523)	(0.412)	(0.775)	(-0.027)
Ownership largest investor	-0.2722***	-0.4405***	-0.4852***	-0.3198***	-0.4600***	-0.0186***	-0.0026***	0.1218	-2.4928***	0.4322***	-0.0255***
	(-3.259)	(-22.866)	(-8.147)	(-21.755)	(-3.954)	(-3.419)	(-3.793)	(1.638)	(-5.171)	(2.899)	(-6.278)
Stock return	-0.0952***	0.0004	0.0414**	0.0119**	-0.5994***	-0.0225***	-0.0016***	-0.1096**	-0.1036		
	(-3.837)	(0.054)	(2.292)	(2.192)	(-8.802)	(-6.345)	(-2.937)	(-2.576)	(-0.618)		
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,965	4,965	4,965	4,965	4,767	4,763	4,965	4,965	4,965	4,965	3,427
R-squared	0.592	0.617	0.840	0.431	0.308	0.209	0.388	0.420	0.361	0.392	0.234

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Table 4 – continued

Panel B: IR score as measure of IR Quality

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) Investor meeting return	(10) Tobin's Q	(11) Cost of capital
IR score	**0.0065**	**0.0066****	**0.0333*****	**0.0003**	**-0.1286*****	**-0.0053*****	**-0.0007*****	**-0.0546*****	**0.2072*****	**0.0826*****	**-0.0028*****
	(0.556)	**(2.221)**	**(3.806)**	**(0.118)**	**(-6.680)**	**(-4.426)**	**(-5.535)**	**(-3.742)**	**(3.390)**	**(3.776)**	**(-3.753)**
Controls as in Panel A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,965	4,965	4,965	4,965	4,767	4,763	4,965	4,965	4,965	4,965	3,427
R-squared	0.554	0.618	0.840	0.431	0.313	0.212	0.392	0.424	0.357	0.387	0.234

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) Investor meeting return t+1	(10) Tobin's Q t+1	(11) Cost of capital t+1
IR ranking	**0.1983*****	**0.0040**	**0.0571*****	**0.0079***	**-0.0849*****	**-0.0023***	**-0.0003***	**-0.0034**	**0.3763*****	**0.1376*****	**-0.0016***
	(11.716)	**(0.729)**	**(4.045)**	**(1.867)**	**(-2.839)**	**(-1.857)**	**(-1.859)**	**(-0.283)**	**(2.911)**	**(3.679)**	**(-1.676)**
Controls as in Panel A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,164	3,164	3,164	3,164	3,101	3,113	3,164	3,164	3,164	3,164	2,382
R-squared	0.541	0.645	0.828	0.439	0.325	0.239	0.370	0.506	0.401	0.396	0.280

Table 5: IR effectiveness and market insider orientation

Panel A of this table reports coefficients from regressions of the dependent variables *Visibility*, *Assimilation*, *Investor meeting return*, *Tobin's Q*, and *Cost of capital* on the interaction of *IR ranking* with *Insider orientation*, i.e., the first factor from a principal component analysis of ownership concentration, stock market participation*(-1), and number funds/GDP per capita*(-1), along with *IR ranking* and the set of control variables. Panel B of this table reports coefficients from the regressions based on entropy balanced sample. The indicator variable *High insider orientation*, which equals one for countries with values of *Insider orientation* above the sample median, is used to weight observations in the sample of outsider-oriented countries (i.e., *Insider orientation* below or equal to the sample median), so that mean and variance for industries and years as well as for the variables *Analyst following*, *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 sample of insider- and outsider-oriented countries. In contrast to Panel A, the dependent variables are regressed on the interaction of *IR ranking* with *High insider orientation*. *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: Insider orientation

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Investor meeting return	(4) Tobin's Q	(5) Cost of capital
IR ranking * Insider orientation	**0.0570*****	**-0.0958*****	**0.0968***	**-0.0282****	**-0.0006**
	(3.524)	**(-4.370)**	**(1.794)**	**(-2.069)**	**(-1.077)**
IR ranking	0.3087***	-0.1304***	0.4840***	0.1547***	-0.0030***
	(11.141)	(-3.969)	(4.909)	(5.280)	(-3.238)
Insider orientation	0.1679	0.1831	0.4112	-0.1201	-0.0012
	(1.426)	(1.191)	(0.904)	(-1.258)	(-0.241)
Analyst following		-0.3645***	0.4716***	0.4359***	-0.0076***
		(-7.264)	(3.301)	(7.849)	(-4.376)
Firm size	0.4774***	0.0036	0.7337***	-0.3320***	0.0033***
	(24.526)	(0.147)	(7.113)	(-11.872)	(3.999)
ROE	0.1372***	-0.2624**	0.0999	0.2602***	0.0005
	(4.138)	(-2.078)	(1.198)	(4.721)	(0.939)
Leverage	-0.0038	0.0038	-0.0160	0.0021	0.0001
	(-0.810)	(0.543)	(-0.597)	(1.257)	(0.424)
R&D/TA	1.1694*	2.9385***	11.4023***	3.9101***	-0.0319
	(1.920)	(4.368)	(3.084)	(3.753)	(-0.867)
Intangibles/TA	0.5056***	-0.5844***	-0.1517	-0.3641**	-0.0004
	(3.421)	(-3.897)	(-0.335)	(-2.226)	(-0.087)
CapEx/TA	0.4001	-0.2601	0.5123	0.1938	-0.0477**
	(0.924)	(-0.310)	(0.495)	(0.570)	(-2.155)
US cross-listing	-0.2562**	0.0183	3.3164***	0.3026***	0.0023
	(-2.037)	(0.133)	(4.067)	(2.750)	(0.532)
Firm age	-0.0031**	-0.0032***	0.0027	0.0008	-0.0000
	(-2.018)	(-2.746)	(0.426)	(0.740)	(-0.031)
Ownership largest investor	-2.4347***	-0.5984***	-2.5005***	0.4347***	-0.0255***
	(-17.229)	(-4.135)	(-5.170)	(2.906)	(-6.276)
Stock return	-0.0666	-0.7372***	-0.1204		
	(-1.469)	(-7.094)	(-0.715)		
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Observations	4,965	4,730	4,965	4,965	3,427
R-squared	0.618	0.391	0.362	0.393	0.235

Table 5 – continued

Panel B: Entropy balancing

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Investor meeting return	(4) Tobin's Q	(5) Cost of capital
IR ranking * High insider orientation	**0.1497***	**-0.2419***	**0.3057***	**-0.0216**	**-0.0022**
	(3.113)	**(-3.745)**	**(1.671)**	**(-0.520)**	**(-1.286)**
IR ranking	0.2346***	-0.0047	0.3103**	0.1217***	-0.0012
	(5.534)	(-0.090)	(2.115)	(3.323)	(-0.860)
High insider orientation	-0.0684	0.0252	-0.6422*	0.0831	0.0008
	(-1.132)	(0.286)	(-1.840)	(1.071)	(0.351)
Analyst following		-0.3327***	0.6115***	0.3983***	-0.0073***
		(-6.242)	(3.848)	(6.919)	(-4.066)
Firm size	0.4700***	0.0260	0.6390***	-0.2889***	0.0027***
	(23.773)	(0.874)	(6.348)	(-10.843)	(3.006)
ROE	0.3853***	-1.2993***	0.2649	0.5634**	-0.0033
	(4.199)	(-5.554)	(1.091)	(2.364)	(-1.365)
Leverage	-0.0098	0.0088	0.0310	0.0042	-0.0001
	(-1.309)	(0.860)	(1.255)	(1.418)	(-0.417)
R&D/TA	1.1514*	2.5527***	11.7438***	4.1599***	-0.0432
	(1.913)	(3.373)	(3.221)	(3.947)	(-1.219)
Intangibles/TA	0.4841***	-0.4950***	0.1809	-0.4483**	0.0013
	(3.024)	(-3.053)	(0.344)	(-2.114)	(0.246)
CapEx/TA	1.2707*	-1.0447	-2.9374	0.6163	-0.0491**
	(1.826)	(-1.238)	(-1.467)	(0.998)	(-2.096)
US cross-listing	-0.1583	0.0110	3.5354***	0.2846*	0.0084*
	(-1.067)	(0.067)	(3.958)	(1.810)	(1.715)
Firm age	-0.0020	-0.0033***	0.0052	0.0004	0.0000
	(-0.897)	(-2.852)	(0.805)	(0.372)	(0.139)
Ownership largest investor	-2.5311***	-0.4146**	-2.5319***	0.4452***	-0.0216***
	(-16.346)	(-2.465)	(-4.855)	(2.800)	(-4.829)
Stock return	-0.0502	-0.6238***	-0.1809		
	(-1.052)	(-6.809)	(-0.910)		
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Observations	4,965	4,730	4,965	4,965	3,427
R-squared	0.627	0.451	0.332	0.397	0.269

Table 6: Effectiveness of the public and private components of IR

This table reports coefficients from regressions of the dependent variables *Visibility*, *Assimilation*, *Investor meeting return*, *Tobin's Q*, and *Cost of capital* on interactions of *Public IR* and *Private IR* with *Insider orientation*, i.e., the first factor from a principal component analysis of ownership concentration, stock market participation*(-1), and number funds/GDP per capita*(-1), along with *Public IR* and *Private IR* and the set of control variables used in the regressions shown in Tables 3, 4, and 5. *Public IR* (*Private IR*) are calculated as fitted values (residuals) from the regression of the variable *IR ranking* on six proxies for disclosure quality: *A/I days*, *Earnings calls*, *Conferences*, *Guidance*, *U.S. cross-listing,* and *URL count investor*. 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.

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Investor meeting return	(4) Tobin's Q	(5) Cost of capital
Private IR * Insider orientation	**0.0485*****	**-0.0583*****	**0.0970****	**-0.0145**	**-0.0003**
	(2.786)	**(-2.743)**	**(2.277)**	**(-0.961)**	**(-0.528)**
Public IR * Insider orientation	**0.0752****	**-0.2135*****	**0.2067***	**-0.0685****	**-0.0015**
	(2.352)	**(-4.602)**	**(1.895)**	**(-2.542)**	**(-1.159)**
Private IR	0.2445***	-0.1371***	0.0966	0.1525***	-0.0029***
	(8.971)	(-4.232)	(1.287)	(5.188)	(-3.132)
Public IR	1.0339***	-0.0803	8.1004***	0.1797**	-0.0036
	(12.852)	(-0.969)	(28.709)	(2.054)	(-1.291)
Insider orientation	0.0767	0.2427	-0.3845	-0.0993	-0.0006
	(0.661)	(1.557)	(-0.953)	(-1.031)	(-0.113)
Controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Observations	4,965	4,730	4,965	4,965	3,427
R-squared	0.642	0.395	0.573	0.394	0.235

Table 7: IR effectiveness and within-country variation in firm-level insider orientation

This table reports coefficients from regressions of the dependent variables *Assimilation*, *Investor meeting return*, *Tobin's Q*, and *Cost of capital* (Panels A and B), and *Visibility* (Panel A) on triple interactions of *IR ranking* with *Insider orientation*, i.e., the first factor from a principal component analysis of ownership concentration, stock market participation*(-1), and number funds/GDP per capita*(-1), and the indicator variable *No controlling shareholder*, which is equal to one for firms whose top shareholder owns less than 25% of the shares, and zero otherwise (Panel A), or the indicator variable *High coverage*, which is equal to one for firms whose analyst coverage is in their country's top quartile, and zero otherwise (Panel B), along with the set of control variables used in the regressions shown in Tables 3-6. *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: **No controlling shareholder**

Dep. Variable:	(1) Visibility	(2) Assimilation	(3) Investor meeting return	(4) Tobin's Q	(5) Cost of capital
IR ranking * Insider orient. * No contr. shareh.	**0.0686***	**-0.0961****	**0.2248****	**0.0341**	**-0.0021***
	(1.961)	**(-2.478)**	**(2.173)**	**(1.229)**	**(-1.816)**
IR ranking * No controlling shareholder	0.0507	0.0098	0.5032***	-0.0225	0.0008
	(1.003)	(0.167)	(3.276)	(-0.486)	(0.480)
IR ranking * Insider orientation	0.0306	-0.0498*	0.0440	-0.0481**	0.0008
	(1.180)	(-1.755)	(0.663)	(-1.984)	(0.847)
Insider orientation * No controlling shareholder	-0.0857**	0.1633***	0.0054	-0.0202	0.0005
	(-2.007)	(3.726)	(0.040)	(-0.498)	(0.385)
IR ranking	0.3014***	-0.1683***	0.2598**	0.1782***	-0.0040***
	(6.912)	(-3.502)	(2.096)	(3.978)	(-3.102)
Controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Observations	4,965	4,730	4,965	4,965	3,427
R-squared	0.621	0.398	0.365	0.393	0.238

Panel B: **High analyst coverage**

Dep. Variable:	(1) Assimilation	(2) Investor meeting return	(3) Tobin's Q	(4) Cost of capital
IR ranking * Insider orientation * High coverage	**-0.1675****	**0.3588****	**0.0484**	**-0.0017**
	(-3.154)	**(2.071)**	**(1.352)**	**(-1.204)**
IR ranking * High coverage	-0.2293***	0.6769**	0.0266	-0.0022
	(-2.855)	(2.184)	(0.476)	(-1.070)
IR ranking * Insider orientation	-0.0773***	0.0158	-0.0381**	-0.0006
	(-3.729)	(0.324)	(-2.349)	(-1.023)
Insider orientation * High coverage	0.1114**	-0.0192	-0.0108	0.0032**
	(2.133)	(-0.123)	(-0.328)	(2.439)
IR ranking	-0.1092***	0.3989***	0.1483***	-0.0026***
	(-3.432)	(4.196)	(4.822)	(-2.760)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	4,730	4,965	4,965	3,427
R-squared	0.396	0.368	0.395	0.239

Table 8: MiFID II, IR effectiveness, and market insider orientation

This table reports coefficients from regressions of the dependent variable *Visibility* on triple interaction of lagged *IR measure*, which is *IR ranking* in column 1, *IR score* in column 2, *IR staff* in column 3, and *IR staffed* in column 4, with *Insider orientation*, i.e., the first factor from a principal component analysis of ownership concentration, stock market participation*(-1), and number funds/GDP per capita*(-1), and with the indicator variable *MiFID II*, which is equal to one for the fiscal year 2018 in all countries except Portugal, Spain, Sweden, and Switzerland, and zero otherwise, along with the set of control variables used in the regressions shown in Tables 3-7. *IR staffed* is an indicator variable equaling one for firms with at least one IR staff member, and zero otherwise. *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.

Dep. Variable:	Visibility			
	(1)	(2)	(3)	(4)
IR Measure:	IR ranking	IR score	IR staff	IR staffed
IR measure t-1 * Insider orientation * MiFID II	**0.0668****	**-0.0376**	**0.0682**	**0.6839*****
	(2.330)	**(-1.343)**	**(1.470)**	**(3.261)**
IR measure t-1 * Insider orientation	0.0627***	0.0941***	0.0353	0.0374
	(3.378)	(6.285)	(0.843)	(0.457)
IR measure t-1 * MiFID II	-0.0269	0.0520	-0.1035	0.3538
	(-0.703)	(1.298)	(-1.544)	(1.527)
Insider orientation * MiFID II	-0.0745***	-0.0564***	-0.1147*	-0.7090***
	(-3.582)	(-2.631)	(-1.944)	(-3.413)
IR measure t-1	0.3182***	0.0476**	0.2046**	0.5782***
	(10.157)	(2.156)	(2.451)	(4.625)
Insider orientation	0.1207	0.1576	0.1190	0.1403
	(0.928)	(1.187)	(0.865)	(0.907)
MiFID II	-0.0109	-0.0116	0.1023	-0.3747
	(-0.182)	(-0.202)	(1.039)	(-1.605)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Observations	3,164	3,164	3,164	3,164
R-squared	0.607	0.579	0.572	0.578

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