Is Myopia Contagious?

The Effect of Investor Culture on Corporate Disclosure Time Orientation

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ABSTRACT

We examine the effect of cultural heterogeneity on corporate disclosure time orientation and its capital market consequences. To measure firms' and investors' cultural time orientation, we use their home country's long-term orientation (LTO) and the dominant language future time reference (FTR). Using textual properties of annual reports, we first document that firms use more long-term oriented words and fewer forward-looking statements when their home country and investor base are culturally more long-term oriented and have a weak FTR language. Next, we use firms' inclusion in the MSCI World Index as an instrument to address causality and find that the investor base's cultural time orientation affects disclosure time orientation. Lastly, we find through path analysis that the effect of cultural misalignment in long-term orientation on disclosure decreases liquidity and increases cost of equity capital. This result suggests that cultural heterogeneity can induce disclosure-based informational frictions.

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1. Introduction

An emerging literature in accounting shows that culture – i.e., customary beliefs and values transmitted through generations by ethnic, religious, and social groups (Guiso et al. 2006) – permeates the reporting decisions of individual executives and corporations, and the capital market response to the information signals they provide. However, as capital increasingly flows across geographic borders, an open question is whether cultural differences between capital providers and seekers affect the way they communicate. That is, while we know that the supply of information and its interpretation vary across cultures, the effect of culture on disclosure from the demand side remains undocumented. We address this gap in the literature by examining whether the cultural roots of foreign investors shape the disclosure narrative of their investees.

We focus on a key aspect of capital markets where culture, investor preferences, and disclosure plausibly intersect – namely, time orientation. We use the term "time orientation" to refer to two characteristics of corporate disclosure. The first is horizon (i.e., short-term versus long-term) and the second is time reference (i.e., future versus past and present). Disclosure horizon is a highly debated topic because critics of short-term oriented disclosure argue that it exacerbates myopic investment behavior, although academic evidence related to that claim is mixed.[1] Disclosure time reference has received more attention recently, as the literature sheds light on its measurement and capital market consequences.[2] Yet the two characteristics have been examined separately, with little consideration for the causal effect of investors' characteristics, and exclusively in the U.S. setting.

Cross-cultural and linguistic research have identified differences across ethnic groups in terms of time horizon and orientation. Long-term orientation (LTO)—the fifth dimension of

[1] See Kraft et al. (2018) and D'Adduzio et al. (2018) for evidence on reporting frequency, and Houston et al. (2010), Chen et al. (2011), Call et al. (2014), and Kim et al. (2017b) for evidence on guidance.
[2] See, e.g., Muslu et al. (2015), Bozanic et al. (2018), and Cazier et al. (2020).

Hoftsede's widely studied cultural dimensions—captures differences across countries such as the population's emphasis on the future versus the present or past, or on savings and investment versus social spending and consumption. In linguistics, Dahl (2000) and Thieroff (2000) argue that languages with strong future time references (FTR) decrease the psychological importance of the future. Throughout our analyses, we refer to both LTO and FTR as joint proxies for the cultural time orientation of capital market participants. Empirically, to increase statistical power while providing more succinct results, we combine two measures of LTO (one directly taken from Hofstede, the other derived from World Value Surveys data) and FTR into a single cultural time orientation factor by adding the corresponding standardized values.[3]

We hypothesize that the time orientation of firm disclosures will reflect the cultural time orientation of their investor base. Prior literature documents that domestic institutional investors demand more disclosure within the U.S. (Boone and White 2015; Bird and Karolyi 2016) as do foreign investors across countries (Tsang et al. 2019). Bushee (1998; 2001) documents significant variation in investor horizon within the U.S. in terms of portfolio characteristics and preferences for firm investment and performance horizon. More recently, Cadman et al. (2019) provide a theoretical and empirical link between investor horizon and disclosure. This literature informs our hypothesis in two ways. First, investor preferences can shape firm disclosure, both within and across countries. Second, one key dimension of investor preferences is their horizon.

[3] We combine those three measures for several reasons. First, we supplement LTO from Hofstede's website using the World Value Survey (WVS) to ensure that we can reconstruct LTO and that it stands the test of time with recent underlying data (we use data from 1981-2010 from the WVS). The two LTO constructs exhibit a very high but not perfect correlation (0.82). We combine the two measures to reduce measurement error, but we obtain similar results if we use them as substitutes. Second, we would have liked to produce more nuanced results by examining LTO and FTR separately. For example, one could envision testing whether LTO is associated with disclosure horizon and FTR with the use of forward-looking statements. However, LTO are FTR are also very highly correlated with one another (0.68). As a result, once again, we obtain qualitatively similar results using one or the other throughout our empirical tests, although the results are more robust with LTO. Accordingly, we decided to combine them into a single measure that blends horizon and time reference into the single concept of time orientation. Results based on each variable (LTO, LTO derived from WVS, and FTR) are available in the online appendix.

The question we test is whether investors' culturally rooted time orientation affects disclosure time orientation. Our conjecture is that investors from societies that are long-term focused and use a language which does not differentiate the future from the present tense will demand disclosures that use more long-term and fewer forward-looking words. These associations should hold if the time orientation is not lost in translation and if it is not "corrected" out of annual reports, which are heavily scrutinized and edited documents.

To test our hypothesis, we collect English-language annual reports from SEC EDGAR and the Global Reports database in Osiris for the 2000-2015 period and compute our disclosure time orientation proxies using the entire documents. To measure disclosure time orientation, we examine textual attributes of international firms' annual reports, all in English. We measure disclosure horizon using the word list of Brochet et al. (2015) and future time reference using future-related words from Henry (2006), Li (2010), Bozanic et al. (2018), and the Linguistic Inquiry and Word Count (LIWC) dictionary. We further combine the disclosure attributes into a single disclosure time orientation factor, using principal component analysis – both for parsimony and to improve the signal to noise ratio compared to using individual proxies.

First, to validate the notion that disclosure time orientation reflects cultural time orientation, we show that firms located in countries that are culturally more long-term oriented use relatively more long-term oriented words, fewer short-term oriented words, and fewer forward-looking statements. That is, disclosure time orientation is positively associated with the firm's home country cultural time orientation. The results also hold when we include country fixed effects and measure long-term orientation at the CEO- instead of firm-level, using CEOs' last names to infer nationality (Ellahie et al. 2017).

Next, and consistent with our hypothesis, we find a significant association between disclosure time orientation and its components (i.e., horizon and future time reference) and the cultural time orientation of the investor base, which we derive from the country of origin of each fund holding the firm's shares, weighted by the percentage of shares held. To address the endogenous nature of the association between corporate ownership and disclosure, we follow prior studies and use the inclusion of firms in the MSCI All Country World Index as an instrument. In a first stage, we establish that MSCI index constituents from long-term (short-term) oriented countries exhibit significantly higher ownership from culturally more short-term (long-term) oriented investors. That is, MSCI index inclusion exogenously increases or decreases the cultural time orientation of the investor base, depending on where the firm is located. In a second stage, we find a significantly positive association between firms' disclosure time orientation and the instrumented cultural time orientation of their investor base. The results hold with firm fixed effects and after controlling for time-varying firm-, investor-, and country-level covariates.

Our evidence thus far shows that the cultural makeup of a firm's investor base contributes to the time orientation of its annual report narratives. Next, we test whether culturally induced changes in disclosure time orientation are associated with capital market consequences. Theoretically, Cadman et al. (2019) identify a negative association between investor horizon and information asymmetry through short-term investors' demand for more disclosure. Empirically, more short-term oriented disclosure has been shown to improve liquidity, whether it is mandatory such as quarterly reporting (Fu et al. 2012) or voluntary such as quarterly guidance (Balakrishnan et al. 2014). Conversely, evidence on long-term oriented disclosure is scant

(Faurel et al. 2018; Kotsantonis et al. 2019). Hence, we leave the capital market effect of investor-induced disclosure time orientation as an empirical question.

Using a path analysis, we show that investors' time preferences for more long-term oriented disclosure and fewer forward-looking statements are associated with greater bid-ask spreads, more zero-return days, higher Amihud illiquidity, and higher cost of equity capital. Hence, our results are consistent with Cadman et al (2019). Likewise, our findings highlight an important trade-off in capital markets between investors' desire for short-term oriented, forward looking disclosure that reduces information asymmetry and the belief that such disclosure not only reflects but also encourages myopic investment behavior (both by firms and investors). In our case, variation in investors' demand for long-term oriented information stems from their cultural heritage, which is arguably exogenous to the firm, especially in the context of index inclusion.

In additional analyses, we find that our results are stronger for active investors than for passive investors, consistent with active investors being greater consumers of disclosure. We also find that the results are driven by observations for which the cultural distance between the firm and the investor base is above the sample median. We further identify broker-sponsored conferences as a plausible channel through which investors convey their preferences. Indeed, we find that the results hold primarily for firms which attend at least one such conference outside of their home country.[4]

Our paper contributes to several streams of literature. First, we add to a series of papers that examine the effect of foreign institutional ownership on firm outcomes. Overwhelmingly, that literature documents benefits associated with foreign ownership: higher firm value, better

[4] The results also hold when we control for additional country characteristics and exclude the U.S. (although the cost of capital effect is weaker). We also find no robust evidence that the cultural time orientation of the investor base causes firms to change their investments' time orientation.

corporate governance, greater comparability (Aggarwal et al. 2011; Bena et al. 2017; Fang et al. 2015). Within that literature, the paper most closely related to ours is Tsang et al. (2019), who document a positive effect of foreign institutional ownership on management forecast issuance and quality. The results in Tsang et al. (2019) largely align with prior literature by showing that foreign institutions demand and obtain greater transparency. Our results highlight a more specific channel through which non-domestic investors affect disclosure, i.e., cultural time orientation. We also document a potential friction as disclosure changes driven by cultural differences can increase information asymmetry and cost of capital.

Second, we add to the accounting and finance literature on culture. The literature thus far has largely focused on the supply side of disclosure. Brochet et al. (2019) find that culturally inherited individualism affects executives' tone during conference calls. Furthermore, they find that analysts' processing of that tone depends on whether they are culturally aligned with the managers. Kim et al. (2017) show that firms' and managers' FTR affects their propensity to manage earnings. However, there is no evidence on the role of investors' culture vis-à-vis disclosure. Our results contribute to this literature in two ways: we highlight a new dimension of culture (LTO) and provide causal evidence of investors' culture affecting firms' disclosure and liquidity.

Third, we contribute to the disclosure catering literature. In addition to Boone and White (2015) and Bird and Karolyi (2016) who link changes in institutional ownership to disclosure, Jung (2013) finds that investor overlap prompts firms to adopt similar disclosures in their 10-K market risk sections. Chapman and Green (2018) document a positive association between analysts' questions and management's future provision of quantitative guidance using earnings conference calls. Building on Cadman et al. (2019), we contribute to this literature by

documenting the effect of investor preferences for disclosure time orientation. We do so using investors' cultural roots and firms' index inclusion as an exogenous setting.

Lastly, our paper is one of the few that examine textual properties of regulatory filings in a cross-country setting. Lundholm et al. (2014) find that foreign firms cross-listed in the U.S. provide disclosures that are more readable, the more distant they are linguistically from English. In doing so, firms attract greater institutional ownership. Lang and Stice-Lawrence (2015) provide extensive large-sample evidence on the content of non-U.S. firms' annual reports and their association with liquidity, before and after IFRS adoption. Using the same data source, we extend their work by examining other textual attributes of annual reports (time horizon and forward-looking statements) and focusing on the demand-side drivers of those attributes.[5] Our results also contrast with Lundholm et al. (2014) by examining the effect of the cultural and linguistic roots of institutional investors on textual attributes of annual reports instead of the other way around.

2. Hypothesis Development

The Effect of Investor Cultural Time Orientation on Disclosure Horizon

Recent research has examined the information demand of institutional investors by looking at plausibly exogenous settings in terms of institutional ownership. Using discontinuities in institutional ownership based on firms' assignments to the Russell 2000 and Russell 1000 Indices, Boone and White (2015) examine the effect of exogenous changes in institutional ownership on U.S. firms' transparency. They find that higher institutional ownership leads firms

[5] In supplemental analyses, we find that the annual reports of firms whose investor base is culturally more long-term oriented also exhibit a lower Fog index, a higher percentage of numbers per sentence, and fewer words, which collectively suggest greater readability. Nevertheless, the effect of investors' time orientation through disclosure time orientation is robust to controlling for the (insignificant) effect of readability on liquidity and cost of capital.

to provide more management forecasts, a proxy for disclosure transparency. Those firms also experience higher analyst following and liquidity. Using the same setting, Bird and Karolyi (2016) document a significant increase in the length and change in content of Form 8-K filings for firms with greater institutional ownership. While Boone and White (2015) and Bird and Karolyi (2016) use U.S. investors and firms, Fang et al. (2015) show that U.S. institutional ownership leads to greater financial statement comparability across foreign firms. Tsang et al. (2019) test whether foreign institutional ownership affects non-U.S. firms' disclosure in a sample of 32 countries. Using firms' addition to the MSCI All-Country World Index as an exogenous shock to foreign institutional ownership, they find that added firms provide more frequent and informative forecasts.[6]

While the studies mentioned above inform our understanding of the causal effect of institutional ownership on firm disclosures, their focus is primarily on disclosure attributes that are largely considered desirable (i.e., greater transparency). Instead, we focus on time orientation because the degree to which firms should disclose short- vs. long-term and backward- vs. forward-looking information is debatable – and therefore lends itself to greater tension.

We build on cross-cultural psychology and linguistic research to identify, ex ante, which capital market participants (firms) are more likely to demand (produce) more short-term and explicitly forward-oriented statements. Hofstede's cultural dimensions stand among the most influential body of work in cross-cultural research. Hofstede initially identified four cultural dimensions (individualism, uncertainty avoidance, power distance, and masculinity) based on

[6] Tsang et al. (2019) find that the positive effect of foreign ownership on management forecasts is stronger when investors are from countries with stronger capital market institutions. Their evidence suggests that foreign investors do not uniformly affect their investees, and the extent to which they do varies with their home country's institutions and norms. We extend Tsang et al. (2019) by identifying a more direct link between the cultural time orientation of investors and the linguistic properties of their investees' annual reports as a mechanism through which investors' culture affect firm disclosures. Importantly, while fewer than 25% of firm-years in Tsang et al. (2019) issue management forecasts, our proxy has meaningful variation across all firm-years. We also control for management forecast issuance throughout our analyses.

interviews with IBM employees around the world. Recognizing the limitations of the initial survey (including its Western-centric approach), he subsequently added a fifth one labelled 'long-term orientation' (LTO) based on work from the Chinese Value Survey. More specifically, LTO derives from the CVS "Confucian work dynamism" factor. Long-term oriented cultures are those that foster "pragmatic virtues oriented to future rewards, in particular perseverance and thrift" whereas short-term oriented societies emphasize "virtues related to the past and the present, in particular, respect for tradition, preservation of 'face' and fulfilling social obligations." Hoftsede et al. (2008) note that individuals from low-LTO countries are more likely to expect immediate gratification, whereas those from high-LTO countries accept deferred gratification. While we are not aware of any evidence on the association between LTO and capital market behavior, it stands to reason that investors located in LTO countries would, all else equal, demand more long-term information.

Furthermore, consistent with Chen (2013), we expect that differences across languages likely influence investor and manager time orientation preferences. Languages differ in the way they require speakers to explicitly differentiate between present and future tenses. For example, an English speaker must use "will" or "is going to" in order to describe a future event, such as "it will rain tomorrow." Likewise, in French, one must conjugate the verb "to rain" in the future tense: "Il [=it] pleuvra [=will rain] demain [=tomorrow]" as opposed to "Il [=it] pleut [=is raining] aujourd'hui [=today]". By contrast, one may say in German "morgen [=tomorrow] regnet [=rains] es [=it]), or "Míngtiān [=tomorrow] shì [=is] yǔtiān [=a rainy day]" in Mandarin. Accordingly, Dahl (2000) distinguishes languages based on whether they lack obligatory future markers or not. Similarly, Thieroff (2000) labels languages as "weak future time reference (FTR)" or non-weak-FTR (thereafter strong FTR). Using the example above, Mandarin and

German (English and French) are considered "futureless" or weak FTR (strong FTR) languages. We simply extrapolate from the above that investors (firms) from weak FTR countries will tend to demand (use) the future tense relatively less in disclosures.

We expect investors from a given cultural and linguistic background to endogenously gravitate towards firms that provide disclosures whose time orientation suits their preferences. Furthermore, we posit that investors that are culturally and/or linguistically more long-(short-) term oriented than their investees will induce those firms to disclose in a way that is more long-(short-) term oriented. Said differently and by way of illustration, we expect U.S. investors (i.e., investors from a low-LTO and strong-FTR country) to (i) have a preference for Chinese firms (i.e., firms from a high-LTO and weak-FTR country) that choose to disclose more short-term and explicitly forward-looking information, but also to (ii) cause Chinese firms to disclose more short-term and explicitly forward-looking information. Formally, our main hypothesis is the following:

> *H1: Increases in ownership from relatively more long-(short-) term oriented foreign investors lead firms to disclose more long-(short-) term-oriented words and use fewer (more) forward looking statements.*

Investor Horizon, Disclosure Horizon, and Capital Market Consequences

We assume that, in equilibrium, the amount and time orientation of firm disclosure reflects various tradeoffs from the managers' and owners' viewpoints. If we reject the null of H1, the next question that our setting raises is whether changes in disclosure induced by cultural misalignment between firms and investors give rise to additional market frictions. For example, if an influx of short-term oriented (e.g., Anglo-Saxon) investors leads a culturally long-term oriented (e.g., Japanese) firm to use more short-term oriented disclosure, investors may find the

resulting information to be uniformly more transparent and thus conducive of lowering information asymmetry. In contrast, the shift in disclosure time orientation may sow greater uncertainty among investors, especially domestic ones, about the true time orientation of the firm. In addition, if the newer short-term (long-term) oriented investors are better at analyzing short-term (long-term) oriented disclosure, information asymmetry could increase. In the absence of a clear theoretical framework for the specific channel we examine (i.e., cultural differences), we leave the question of whether investor-induced changes in disclosure time orientation as an empirical one and state our second hypothesis in null form.

H2: Changes in the time orientation of firm disclosures driven by changes in the cultural time orientation of the investor base do not affect the firm's liquidity or cost of capital.

3. Sample and Empirical Measures

Sample Selection

Our annual reports sample is collected from two main sources. For U.S. firms we collect 10-K filings (i.e., annual reports) from SEC EDGAR. For non-U.S. firms we collect annual reports from the Global Reports database in Bureau van Dijk's Osiris (Lang and Stice-Lawrence 2015).[7] In total, our sample contains 37 countries spanning the years 2000 to 2015. We merge the extracted annual reports with Worldscope and Factset institutional ownership using ISIN and fiscal year end, to arrive at 84,198 firm-year observations for our main analyses. Table 1 summarizes the sample selection process.

Cultural Time Orientation

[7] We follow Lang and Stice-Lawrence's (2015) Sikuli code to pull all non-U.S. firms' annual reports from the Osiris database. Since non-U.S. firms' annual reports are in PDF (i.e., portable document format), we use pdfminer from Python to convert all readable PDF annual reports into TXT (i.e., text file) for the textual extraction process.

We assign a cultural time orientation score to institutional investors, companies, and managers using a combination of three measures. First, we use Hofstede's (2001) long-term orientation (LTO) index. Hofstede originally derived four cultural dimensions from cross-country surveys of IBM employees between 1967 and 1973. However, LTO was not part of the original four dimensions. As Hofstede's surveys and initial cultural dimensions reflected a Western-centric set of values, Chinese scholars developed their own questionnaire and surveyed students in 23 countries. Of the four cultural dimensions that emerged from their survey, the second factor – Confucian work dynamism – did not correlate with any of the Hofstede cultural dimensions. The factor loads positively on persistence, ordering relationships by status, thrift, and having a sense of shame, and negatively on personal steadiness, protecting one's face, respect for tradition, and reciprocation of greetings. Hofstede et al. (2010) further updated LTO based on the work of Minkov (2007, 2011), who used data from the World Values Survey (WVS) to re-examine cross-national cultural dimensions.[8] The LTO data is now available for 93 countries. We retrieve LTO scores directly from www.hofstede-insights.com. Furthermore, we replicate LTO using data from the WVS, as detailed in Appendix A. We thus obtain two country-level measures of time orientation, which we label *LTO* and *WVS_LTO*, respectively. Lastly, we follow Chen (2013) and separate countries based on the future time reference of their dominant language. *Strong_FTR* indicates countries whose main language has a strong future time reference.

The three constructs – *LTO*, *WVS_LTO* and *Strong_FTR* – are measured at the country-level. That is, they capture the average individual's cultural time orientation in a country. Our

[8] WVS started in 1981 to test whether cultural values were changing over time. As a result, surveys are run periodically. Topics cover a broad range of questions about beliefs (including religious), values, and preferences on social and economic issues. See http://www.worldvaluessurvey.org/wvs.jsp for more details.

main units of observations are corporations, institutional investors, and pairs thereof. To assign a cultural time orientation to those entities, we use the country where they are headquartered, as indicated in Worldscope for companies and Factset for investors.[9] To measure the time orientation of a firm's investor base, we average the time orientation of all institutions holding its stock, weighted by the number of shares held. In our sample, both strong and weak FTR languages have a significant presence in Belgium, Singapore, and Switzerland. For Belgian and Swiss firms and investors, we search their headquarters in Capital IQ and online to determine whether their main language is (i) Dutch or French for Belgian firms, (ii) French, German, or Italian for Swiss firms, and code their FTR accordingly. As this method does not enable us to reliably distinguish between the influence of English and Malay in Singaporean firms and funds, we code all Singaporean entities as strong FTR. In untabulated robustness tests, all our conclusions remain unaffected if we drop firms and investors from Singapore.

Lastly, we combine *LTO*, *WVS_LTO*, and *Strong_FTR* into a single proxy for cultural time orientation by subtracting *WVS_LTO* and *Strong_FTR* from *LTO*, where each measure is standardized. We subtract rather than add *WVS_LTO* and *Strong FTR* because they are decreasing in long term orientation. Therefore, our combined measure is increasing in long term orientation. We label the measure *Culture_time*. We use *Culture_time* as our main proxy for two reasons. First, the individual measures are highly correlated with each other (untabulated pairwise correlations range from 0.68 to 0.82). To report test results based on each measure would be cumbersome and repetitive. Second, we expect our construct of interest, i.e., cultural time orientation, to be best captured by a combination of LTO and FTR and to better map into our disclosure proxies, which we introduce next.

[9] Countries refer to sovereign states or special administrative regions.

Disclosure Time Orientation

We examine two dimensions of corporate disclosures: horizon and future (versus past and present) time reference. Disclosure horizon is the extent to which disclosures refer to the short- versus long-term. Using the wordlist of Brochet et al. (2015), we count short- and long-term oriented words in firms' annual reports. Short-term words either refer explicitly to a short horizon ("short term", "short run") or to specific time markers within a year (i.e., "day(s)", "week(s)", "month(s)", "quarter(s)"). Similarly, long-term words either refer to a long horizon ("long term", "long run") or a time marker beyond a year ("year(s)"). We label the ratio of short- to long-term words as *Short_Long_Horizon*.

Time reference is the extent to which disclosure refers to the past, present, or future. We use several proxies to capture this dimension. We follow Henry (2006) and Li (2010) by counting the number of future-oriented words such as "expect*", "anticipate", "forecast*", "believe" scaled by total words, which we label *Henry_FLS* and *Li_FLS*, respectively. We also follow Bozanic et al. (2018) by counting the percentage of sentences that are forward-looking, which we label as *BRV_FLS*. Furthermore, to capture past-, present-, and future-oriented words, we use the past, present and future wordlists from the Diction software.[10] We also scale those word counts by total words and label them *Past_LIWC*, *Present_LIWC*, and *Future_LIWC*, respectively.

Lastly, to streamline and increase the statistical power of our tests, we combine the individual proxies described above into a single measure of disclosure time orientation using

[10] While prior accounting literature has extensively examined forward-looking statements, we are not aware of any established wordlist or proxy for business disclosure related to the present and past. Hence, we use the well-established Diction wordlist. The Diction wordlist was developed and used by Roderick Hart, a specialist in politics and mass media. Diction wordlists are included in the commercially available software Diction 5.0 and are applied in a wide variety of settings including capital market research (Henry and Leone 2016).

principal component analysis, which we label *Disclosure_time*. As described in detail in Appendix B, *Disclosure_time* is the first factor of the principal component analysis, which loads positively on *Short_Long_Horizon*, *Henry_FLS*, *Li_FLS*, *BRV_FLS, Future_LIWC*, and negatively on *Past_LIWC* and *Present_LIWC*. We multiply the factor by -1 so that it is increasing in long-term orientation and decreasing in the explicit use of future tense.

Descriptive Statistics

Table 2 provides country-level means for cultural time orientation, firm-level disclosure time orientation, and fund-level portfolio turnover. In terms of sample composition, as expected, the U.S. dominates the sample both in terms of firms and investors. Culturally speaking, Anglo-Saxon and Latin American countries tend to exhibit low time orientation (that is, they tend to be short-term oriented and have a strong FTR dominant language), whereas East Asian and Northern European countries are among the highest (that is, they tend to be long-term oriented and have a weak FTR dominant language). Indeed, *Culture_time* is -2.10 in the U.S., -1.15 in Canada, and -0.80 in Brazil, whereas it is 5.70 in China, 6.49 in Japan, and 5.82 in Germany. Disclosure time orientation appears to follow a similar pattern. The untabulated pairwise correlation between cultural and disclosure time orientations measured at the firm-year level is 0.56. Furthermore, as reported at the bottom of the second to last column, mean disclosure time orientation is 1.25 for firms in countries that are above the sample median versus -0.51 for those in countries that are below the sample median, the difference being statistically significant ($p<0.001$). To further validate our assumption that cultural time orientation affects institutional investors, we compare fund portfolio turnover, calculated across all holdings (i.e., both domestic and foreign). As reported at the bottom of the last column, mean portfolio turnover is 0.17 for funds in countries that are above the sample median versus 0.18 for those in countries that are

below the sample median, the difference being statistically significant (p=0.003). While the difference is small, it validates our first assumption that funds from countries that are more long-term oriented behave as more long-term oriented investors.[11]

4. Research Design and Results

Culture and Disclosure Time Orientation (H1)

To examine whether the time orientation of firm disclosures varies both with the firm's and its investor base's cultural time orientation, we use the following regression model:

$$Disclosure\_time_{i,t} = \alpha_0 + \beta_1\, Culture\_time_i + \beta_2\, Culture\_time\_investors_{i,t} + \sum \beta_j\, Firm\ Control_{i,t} + + \sum \beta_j\, Investors\ Control_{i,t} + \sum \beta_n\, Country\ control_i + Industry\ FE + Year\ FE + \varepsilon_{i,t.} \quad (1)$$

We use several dependent variables that capture different dimensions of disclosure time orientation, as described in Section 3. We expect firms to use relatively fewer (more) short- (long-) term-oriented words, fewer (more) forward-looking (present- and past-related) statements when they are headquartered in a country that is culturally more long-term oriented (β_1) and when their investor base is culturally more long-term oriented (β_2).

We include a battery of control variables that are expected to be correlated with the dependent variables and the explanatory variables of interest. We provide an overview of those controls and the rationale for their inclusion. For details on variable constructs, refer to Appendix A. First, we include several variables that capture firms' information environment: size, analyst coverage, guidance issuance, IFRS reporting. We expect larger firms with greater analyst coverage, those that issue earnings guidance and that report under IFRS to discuss relatively more

[11] These results are robust to the exclusion of the U.S. The difference between the above-median and below-median average values is statistically significant for *Culture_time* at the 1% level and mean portfolio turnover at the 10% level. In the internet appendix we include robustness tests when excluding the U.S.

short-term oriented and forward-looking information. Next, we include controls for firm performance and growth opportunities: return on assets (ROA), a loss indicator, and the market-to-book ratio. We expect underperforming firms to discuss more short-term oriented information, whereas firms with better growth opportunities should use more forward-looking disclosure. Furthermore, we control for the ownership composition of the firm with the percentage of closely held shares, the percentage of domestic institutional ownership, and an indicator for U.S. cross-listings. We expect firms with more concentrated ownership to disclose more long-term information, whereas cross-listed firms are likely to cater to U.S. investors' demand for more short-term and forward-looking information. Our last set of firm covariates control for operating (foreign sales, CFO volatility) and financing (leverage, dividend) characteristics that are plausibly associated with disclosure and culture (e.g., Bedendo et al. 2019). Our next set of controls is at the country-level. We include the other Hofstede cultural dimensions, i.e., individualism, masculinity, power distance, uncertainty avoidance, and indulgence. While we have no expectation with regards to the association between any of those cultural dimensions and disclosure time orientation, we want to ensure that the effect of long-term orientation, if any, is robust to their inclusion. Lastly, and in the same spirit, we control for the other Hofstede cultural dimensions at the investor base level. That is, similar to how we measure the cultural time orientation of the investor base, we use the country of origin of each fund holding the company's shares and value weight each cultural dimension accordingly. We supplement the control variables with industry and year fixed effects to account for time-invariant industry characteristics and macro time-series trends or shocks that may affect disclosure time orientation.

Before discussing regression results, we report descriptive statistics for all variables in Table 3. The unit of observation is a firm-year. Although they appear low, both mean domestic

(8%) and foreign (3%) institutional holdings are consistent with prior studies using Factset. Control variables are also largely consistent with other studies examining disclosure in cross-country settings.

Table 4 reports regression estimates for Model (1). In the first seven columns, we examine individual disclosure proxies. In column 1, the dependent variable is *Short_Long_Horizon*. The significantly negative coefficient on *Culture_time* indicates that firms located in countries that are more long-term oriented use relatively more long-term oriented disclosure narrative (coef.=-0.028, $p<0.01$). Furthermore, the significantly negative coefficient on *Culture_time_investors* indicates that firms whose investor base is culturally more long-term oriented use relatively more long-term oriented disclosure narrative as well (coef.=-0.011, $p<0.01$).[12] In columns 2, 3, 4, and 5, the dependent variable is *Henry_FLS*, *Li_FLS*, *Future_LIWC*, and *BRV_FLS*, respectively. The coefficients on both *Culture_time* and *Culture_time_investors* are all negative and significant ($p<0.01$), which means that firms that are from more long-term oriented countries and whose investor base is culturally more long-term oriented use fewer future oriented words, on average. In contrast, when the dependent variable is *Past_LIWC* (column 6) or *Present_LIWC* (column 7), the coefficient on *Culture_time* is insignificant, and the one on *Culture_time_investors* is positive and significant ($p<0.01$). That is, firms whose investor base is culturally more long-term oriented refer more often to the past or present. In column 8, the dependent variable is *Disclosure_time*, which is the first factor from a principal component analysis of the individual measures in columns 1-7. Consistent with the results in columns 1-7, the coefficients on *Culture_time* and *Culture_time_investors* are significantly positive. Lastly, the specification in column 9 includes

[12] In untabulated tests, we examine separately the number of short-term words and the number of long-term words as dependent variables (both scaled by total words). We find negative (positive) and significant signs on both *Culture_time* and *Culture_time_investors* for short-term (long-term) words. That is, the cultural long-term orientation of firms and their investor base is associated with a lower frequency of short-term words and a higher frequency of long-term words.

country fixed effects and measures *Culture_time* at the CEO instead of firm-level. This research design takes advantage of cross-cultural hires where managers' cultural background, as inferred from their last name, differs from that of the firm based on their headquarter location. While the coefficient magnitudes are much smaller than in column 8, they remain positive and statistically significant ($p<0.01$). Collectively, the results are consistent with H1: the cultural long-term orientation of firms' investor base is associated with the use of more long-term and fewer forward-looking statements in their annual reports, above and beyond that of their home country. For brevity, we do not discuss coefficients on control variables, although we note that many of them have significant coefficients.[13]

Causal Effect of Investor Base on Disclosure Time Orientation

The results thus far document partial correlations between the cultural time orientation of firms' investor base and the time orientation of their annual report narratives. To better identify the effect of investor cultural time orientation on disclosure, we follow prior literature (Bena et al. 2017; Dyck et al. 2019; Tsang et al. 2019) and use firms' inclusion in the MSCI All Country World Index as an exogenous shock to their investor base. We first design the following difference-in-difference test:

$$Disclosure\_time_{i,t} = \alpha_0 + \beta_1 MSCI_{i,t} + \beta_2 MSCI_{i,t} \times Dm\ Culture\_time_i + \sum \beta_j Firm\ Control_{i,t} + \sum \beta_j Investors\ Control_{i,t} + Firm\ FE + Year\ FE + \varepsilon_{i,t}$$

The dependent variable is disclosure time orientation. *MSCI* is an indicator for firms included in the MSCI index. While an influx of foreign investors is likely to result in cultural misalignment, the direction will differ depending on where the firm stands on the cultural time

[13] One noteworthy set of results is that most coefficients on Hofstede's other cultural dimensions, both for the firm and the investor base, are significant. Again, while we have no hypothesis with respect to the signs on those coefficients, we acknowledge that cultural long-term orientation is not the only cultural dimension that explains variation in our disclosure variables of interest.

orientation distribution. For that reason, we also interact *MSCI* with *Dm Culture_time*, which corresponds to our *Culture_time* variable rescaled to range from zero to one. We expect firms located in culturally more short-term oriented countries to use fewer short-term and forward oriented words in their disclosures after being included in the index, i.e., a positive coefficient on *MSCI* ($\beta_1>0$). Similarly, we expect firms located in culturally more long-term oriented countries to use more short-term and forward oriented words in their disclosures after being included in the index, i.e., a negative coefficient on *MSCI×Dm Culture_time* ($\beta_2>0$) and a negative sum of coefficients $\beta_1+\beta_2$, which captures the effect in the most long-term oriented countries. Since we include firm fixed effects, *Culture_time* and other country-level cultural variables are excluded from the regression.

Next, we use a two-stage instrumental variable (IV) model as follows:

$$Culture\_time\_investors_{i,t} = \alpha_0 + \beta_1 MSCI_{i,t} + \beta_2 MSCI_{i,t} \times Dm\ Culture\_time_i + \sum \beta_j Firm\ Control_{i,t} + \sum \beta_j Investors\ Control_{i,t} + Firm\ FE + Year\ FE + \varepsilon_{i,t}$$

$$Disclosure\_time_{i,t} = \alpha_0 + \beta_1 Culture\_time\_investors\_IV_{i,t} + \sum \beta_j Firm\ Control_{i,t} + \sum \beta_j Investors\ Control_{i,t} + Firm\ FE + Year\ FE + \varepsilon_{i,t.}$$

In the first-stage regression, we model the cultural time orientation of a firm's investor base as a function of MSCI index inclusion and its interaction with the firm's cultural time orientation. That is, we use *MSCI* as an exogenous instrument and allow its effect on the investor's base culture to vary based on where the firm lies on the cultural horizon spectrum, like the difference-in-difference model. In the second-stage regression, we replicate Model (1), i.e., with disclosure time orientation as the dependent variable, but replace the investor base's cultural time orientation by its instrumented value from the first stage. Consistent with all prior studies that use MSCI inclusion for identification, we argue that the exclusion restriction is met as *MSCI*'s only effect on disclosure

time orientation, if any, should come through the change in investor base. Note, again, that we use firm fixed effects, which results in the firm's cultural time orientation being dropped from the regression.

Table 5 reports the MSCI-based results. In Panel A, we show the difference-in-difference results. In column 1, the sample includes all observations. The coefficient on *MSCI* is positive and significant ($p<0.01$). Therefore, firms in countries that are the most short-term oriented, provide more long-term and forward oriented disclosures when they are included in the MSCI ACWI. In addition, the coefficient on *MSCI×Dm Culture_time* is negative and significant ($p<0.01$), as expected. It indicates that, the more long-term oriented a firm's culture is (as per its country of origin), the more short-term and forward oriented its disclosure becomes when it is added to the MSCI ACWI. The sum of the coefficient on MSCI and *MSCI×Dm Culture_time* is negative and significant at the 1% level. Therefore, firms in countries that are the most long-term oriented, provide fewer long-term and forward oriented disclosures when they are included in the MSCI ACWI. In column 2, the sample only includes firms that are added to the MSCI ACWI during our sample period along with a matched sample.[14] The coefficient on *MSCI* remains positive and significant ($p<0.01$) and *MSCI×Culture_time* remains negative and significant ($p<0.01$).

In Panel B, we show the two-stage IV results. Column 1 reports the first stage results. The coefficient on *MSCI×Dm Culture_time* is negative and significant, suggesting that the more long-term oriented a firm's culture is (as per its country of origin), the more short-term oriented its investor base becomes when it is added to the MSCI ACWI. In addition, the coefficient on *MSCI* is positive and significant and the sum of the coefficients on *MSCI* and *MSCI x Dm Culture_time* is negative and significant at the 1% level. That is, our instrument is valid in the sense that MSCI

[14] We match each firm the year before the addition with a firm from the same country that has the closest predicted *Disclosure_time* based on investors' cultural long-term orientation.

index inclusion brings about exogenous cultural misalignment between firms and their investors. Column 2 reports the second-stage results. The coefficient on *Culture_time_investors_IV* is positive and significant (coef.=0.459, p<0.01). That is, the arrival of culturally longer-term oriented investors, as modelled through MSCI index inclusion, results in more long-term and less forward-looking disclosure from investees. Hence, the evidence in Table 5 is consistent with H1: the cultural time orientation of the investor base has a positive causal effect on the disclosure time orientation of firms.

Path Analysis of Capital Market Consequences of Investor and Disclosure Time Orientation (H2)

To test whether the effect of investors' cultural preferences in terms of disclosure time orientation of investors affect their investees' liquidity and cost of capital, we perform a path analysis (Wright 1934). Like Tsang et al. (2019), we estimate a structural equation model with two regressions as follows:

$$Disclosure\_time_{i,t} = \alpha_0 + \delta_1 Culture\_time\_investors_{i,t} + \delta_2 Culture\_time\_manager_{i,t} + \sum \delta_j Firm\ Control_{i,t} + \sum \delta_j Investors\ Control_{i,t} + Country\ FE + Industry\ FE + Year\ FE + \varepsilon_{i,t.}$$

$$Liquidity\ (Cost\ of\ Capital)_{i,t} = \alpha_0 + \gamma_1 Disclosure\_time_{i,t} + \gamma_2 Culture\_time\_investors_{i,t} + \gamma_3 Culture\_time\_manager_{i,t} + \sum \gamma_j Firm\ Control_{i,t} + \sum \gamma_j Investors\ Control_{i,t} + \sum \gamma_n Country\ control_i + Country\ FE + Industry\ FE + Year\ FE + \varepsilon_{i,t.}$$

The first regression is the same as Model (1). That is, the dependent variable is disclosure time orientation and the main variables of interest the investor base's cultural time orientation. In the second regression, the dependent variable is a proxy for firm liquidity or cost of capital.

Consistent with prior research, we use several proxies and combine them (e.g., Daske et al. 2008). The individual proxies for stock liquidity consist of the bid-ask spread, an indicator for zero-return trading days, and the Amihud illiquidity ratio, all measured daily and averaged at the firm-year level. The combined liquidity proxy *Information_Asymmetry* is the first factor of a principal component analysis of these three measures. The individual cost of equity capital estimates are based on the models of Claus and Thomas (2001), Gebhardt, Lee, and Swaminathan (2001), Ohlson and Juettner-Nauroth (2005) and the modified PEG ratio model by Easton (2004). Consistent with Daske et al. (2008), we take the mean of those different cost of capital estimates to obtain *Cost of Capital*. The independent variables include disclosure time orientation, investor base cultural time orientation, and all control variables from Model (1). Of interest to us is the indirect effect of *Culture_time_investors* on liquidity or cost of capital via *Disclosure_time*. That is, our test of H2 is whether the product of δ_1 and γ_1 is significantly different from zero. Investors' cultural time orientation may have a direct effect (γ_2) on liquidity or cost of capital, but we make no prediction in that regard.

Table 6 reports the results for our path analysis. In Panel A, we examine liquidity. For brevity, we only report coefficients on the variables of interest, but all control variables are included. In column 1, the dependent variable is disclosure time orientation. Consistent with results in Table 4, there is a positive and significant coefficient on the investor base cultural time orientation. In column 2, the dependent variable is the bid-ask spread. The indirect effect of investors' cultural time orientation through disclosure time orientation is positive and significant ($p<0.01$), which suggests that, when firms use more long-term and less forward-looking language in their annual reports, they experience, on average, a higher bid-ask spread. Similarly, in columns 3 and 4, the indirect effect of cultural time horizon is positive and significant ($p<0.05$), suggesting

that firms also have more zero-return trading days and a higher ratio of absolute return to trading volume. Lastly, in column 5, the dependent variable is *Information_Asymmetry*. Consistent with the individual components in columns 2-4, the indirect effect of investors' cultural time orientation is positive and significant ($p<0.05$). Hence, we reject the null of H2 in terms of liquidity: An increase in disclosure time orientation induced by an increase in investor base cultural time orientation is associated with lower liquidity.

In Table 6, Panel B, we examine the effect of cultural time orientation on cost of capital. Again, in column 1, the dependent variable is disclosure time orientation and the coefficient on the investor base cultural time orientation is positive and significant. In columns 2-5, the dependent variable is implied cost of equity capital, estimated according to Claus and Thomas (2001), Gebhardt, Lee, and Swaminathan (2001), Ohlson and Juettner-Nauroth (2005) and the modified PEG ratio model by Easton (2004), respectively. In column 6, the dependent variable is the average of the columns 2-5 measures. In all columns, the indirect effect of investor base cultural orientation through disclosure time orientation on cost of capital is positive, and significant in column 2 ($p<0.10$), columns 4-5 ($p<0.01$), and column 6 ($p<0.05$). Hence, we reject the null of H2 in terms of cost of capital: An increase in disclosure time orientation induced by an increase in investor base cultural time orientation is associated with higher cost of equity capital.

5. Additional Tests

Partition by Cultural Distance

Our results so far suggest that an increase in disclosure time orientation resulting from an increase in the cultural time orientation of the investor's base is associated with lower liquidity and higher cost of equity capital. Next, we investigate whether this effect varies with the degree of

cultural misalignment between the firm and its investor base. To this end, we partition our sample between observations for which the absolute difference between *Culture_time* and *Culture_time_investors* is above the sample median (high cultural distance) and below the sample median (low cultural distance). The mean cultural distance for the low group is equivalent to the cultural distance between France and the U.K. and for the high group it is equivalent to the cultural distance between France and South Korea. Table 7 presents the results for this test. The association between *Disclosure_time* and *Culture_time_investor*s is significant for our high cultural distance partition (column 4) but not the low cultural distance one (column 1). In addition, the indirect effect of investor base cultural orientation through disclosure time orientation on liquidity and the cost of capital is positive and significant for this partition only. That is, when the cultural distance between the firm and the investor base is greater, investor-induced increases in disclosure time orientation lead to higher information asymmetry (column 5) and cost of capital (column 6).

Active vs. Passive Investors

Our identification strategy relies on firms' inclusion in the MSCI All-World Index. Index inclusion automatically results in an influx of passive investors. Yet, those investors may not be particularly sensitive to disclosure. We therefore check that (i) MSCI inclusion also results in an increase in active institutional investors, and (ii) that active investors' cultural origin has a significant effect on firms' disclosures. We use Factset's classification of the fund "style" to classify institutional investors as active or passive. We classify investors as passive if Factset style is "Index" and as active if style is "Aggressive Growth", "Deep Value", "GARP", "Growth", "Value", or "Yield".

Table 8 reports the results. For brevity, we only tabulate coefficients on variables of interest. In Panel A, we replicate Panel B from Table 5 by distinguishing active and passive

investors. In the first two columns, the coefficients on *MSCI* and *MSCI* x *Dm Culture_time* are significantly positive and negative, respectively. This is consistent with Table 5. Hence, MSCI inclusion exogenously increases (decreases) the long-term orientation of firms' active and passive investor base if they are headquartered in a relatively short-term (long-term) oriented country. In column (3), the coefficient on *Culture_time_active_investors_IV* is positive and significant. That is, the cultural time orientation of the firm's active investor base, as instrumented by the first stage in column (1), is positively and significantly associated with disclosure time orientation. In column (4), however, the coefficient on *Culture_time_passive_investors_IV* is not significant. Hence, the cultural time orientation of passive investors has no causal effect on disclosure time orientation.

In Table 8, Panel B, we re-run the path analysis by separately modeling disclosure time orientation as a function of the cultural time orientation of active investors (column 1) and passive investors (column 2).[15] Consistent with the Panel A results, there is a significantly positive association between investor base cultural time orientation and disclosure time orientation only for active investors (as per the coefficient on *Culture_time_active_investors* in column 1). Furthermore, the indirect effect of the cultural time orientation of the investor base on information asymmetry and cost of capital is positive and significant only for active investors (as per the coefficients on *Indirect_effect_active* in columns 3 and 4). Hence, our results appear to be primarily driven by active investors, which is consistent with those investors being greater consumers of disclosure.

Investor Conference Participation as a Mechanism

How can investors influence firms' disclosure choices? Chapman and Green (2018) show that analysts' questions during conference calls lead firms to proactively offer guidance in

[15] Because the sample size for firms with passive investors is considerably smaller, we replace the culture time orientation of passive investors with that of the firm's country of origin when missing.

subsequent disclosures. While some investors also ask questions during conference calls (Jung et al. 2018), most are likely domestic. Instead of conference calls, we identify broker-sponsored conferences as another setting where corporate representatives and investors interact. The upside of those conferences is that they are more likely to happen outside of the firm's home country. Thus, they offer a plausible setting for cross-cultural firm-investor interactions.[16] We collect information on firms' participation in those conferences from Capital IQ. The data is populated mostly after 2009. Hence, our sample size is significantly reduced for this test. We split the sample between firm-years during which the company attended at least one conference abroad, and those where the firm did not interact with investors abroad and then re-run our panel regression of *Disclosure_time* on *Culture_time* and *Culture_time_investors*.

Table 9 reports the results. In column (1), the sample is limited to firms with direct exposure to foreign investors. The coefficient on *Culture_time_investors* is positive and significant. In column (2), the sample is limited to firms with no (observable) direct exposure to foreign investors. The coefficient on *Culture_time_investors* is also positive but not significant. While an F-test fails to reject the null of statistical difference between the coefficients in columns (1) and (2), the results suggest that broker-sponsored conferences are a venue where foreign investors' preferences for disclosure time orientation are transmitted to firms.

Real Effects on Investment Horizon

Throughout our tests, we assume that investor preferences shape disclosure, holding constant the firm's investment policies. However, Bena et al. (2017) show that foreign investors lead to more long-term oriented investment. In untabulated analyses, we test whether the cultural time orientation of the investor base also changes the investment choices of the firm. While we

[16] Typically, several firms participate in those conferences – hence it is possible that cross-cultural firm-to-firm interactions also occur.

cannot observe investment horizon, we use two variables to gauge whether firms invest for the long-term: discretionary R&D and SG&A, as per Roychowdhury (2006). In brief, we find that firms located in countries that are more long-term oriented invest more in R&D and discretionary SG&A. This is consistent with Chi et al. (2018). However, we find no evidence that the cultural time orientation of investors causes significant changes in firms' investment horizon.

Other Disclosure Attributes

As our results in Table 4 indicate, long-term orientation is not the only cultural dimension of the investor base to exhibit a significant association with disclosure time orientation. Conversely, it is possible that cultural time orientation would also be associated with other disclosure attributes. Of concern to us is the possibility that those disclosure attributes would subsume the effect of cultural time orientation on capital market outcomes. Accordingly, we revisit our tests by examining other properties of annual reports that are plausibly associated with investor preferences and liquidity. We examine the Fog Index, number of numbers, and document length, which proxy for readability or complexity (Lang and Stice-Lawrence 2015; Siano and Wysocki 2018). Furthermore, as with our single disclosure time orientation measure, we create a single *Disclosure_readability* measure based on principal component analysis of FOG, number of numbers, and total number of words. All variable definitions are available in Appendix A and details on the principal component analysis in Appendix B.

Table 10 reports the results for our analysis of the readability measures. For brevity, we only tabulate the coefficients on the variables of interest. In Panel A, we replicate Model (1) with FOG as the dependent variable in column 1, number of numbers in column 2, log of total words in column 3, and *Disclosure_readability* in column 4. In Column 5, we add country fixed effects and replace *Culture_time* with *Culture_time_manager*. In column 6, we replace

Culture_time_investors with its instrumented version *Culture_time_investors_IV*. In columns 1 and 3 (column 2), the coefficients on *Culture_time* and *Culture_time_investors* are negative (positive) and significant ($p<0.01$). That is, the annual reports of firms located in countries that are more long-term oriented and whose investor base is culturally more long-term oriented have a lower Fog index, fewer words, and more numbers per sentence. This suggests that cultural time orientation is positively associated with higher annual report readability, which is consistent with the positive coefficients on *Culture_time* and *Culture_time_investors* in column 4. When we include country fixed effects, the coefficient on *Culture_time_investors* remains negative and significant ($p<0.01$) whereas the coefficient on *Culture_time_manager* is not significant. Lastly, *Culture_time_investors_IV* is also positively and significantly associated with *Disclosure_readability,* which suggests that a change in the cultural time orientation of the investor base can lead to more readable annual reports.

Table 10, Panel B, reports the results for the path analysis from Model (3) augmented with disclosure readability as another channel through which investor cultural time orientation may affect liquidity and cost of capital. That is, we run three simultaneous equations: (i) disclosure time orientation on investor cultural time orientation, (ii) disclosure readability on investor cultural time orientation, and (iii) liquidity or implied cost of capital on investor cultural time orientation, disclosure time orientation, and disclosure readability. For brevity, we report only the direct and indirect effects of investor cultural time orientation on the liquidity factor (column 1) and the average implied cost of capital (column 2). In column 1 (2), the indirect effect of investor horizon via disclosure readability (cost of capital) is insignificant. More importantly, the effect via disclosure time orientation remains significant after accounting for those other factors.

Other Country Attributes

Throughout our tests, we implicitly assume that Hofstede's cultural dimensions, along with language FTR, comprehensively capture the channels through which investors' country of origin may influence investees' disclosure attributes. Yet, as Isidro et al. (2019) show, country-level measures of culture are highly correlated with a host of other economic, political, regulatory, or sociological factors that are impossible to disentangle in a cross-country setting, and yet most are correlated with disclosure quality. Our hypotheses and research design partially address the Isidro et al. (2019) concerns in two ways. First, we examine disclosure attributes that are theoretically (from a cultural psychology and linguistic standpoint) linked to the variables of interest. That is, by construct, long-term orientation relates to the use of long-term words, and FTR relates to the use of the future tense. Hence, this rules out more "recent" or indirectly related country characteristics such as political and capital market attributes. Second, we consider LTO and FTR as a portfolio of country attributes instead of focusing on a single variable. However, this does not rule out correlated omitted variables – something we likely cannot achieve in a cross-country setting. Isidro et al. (2019) extract four factors from a principal component analysis of 72 country attributes. Their fourth factor loads both positively on LTO and negatively on U.S. institutional holdings, which is consistent with our hypothesis. However, the factor also loads on the prevalence of Buddhism in the country. Accordingly, we revisit our tests after including indicators, both at the firm- (when applicable) and fund levels, for whether the largest percentage of the country population identifies as Buddhist, Catholic, Muslim, or Protestant. After controlling for the average religious affiliation of the investor base, our results still hold. We also control for the first three factors from Isidro et al. (2019), both measured at the firm- and investor-base levels. Again, our results are generally robust to the inclusion of those factors. Please see the Online Appendix for tabulated results.

6. Conclusion

We examine the effect of cultural misalignment between firms and their investors on disclosure and its capital market consequences. Using time orientation as our cultural dimension of interest, we first document that investors (firms) located in countries that are culturally more long-term oriented trade less frequently (disclose more long-term and less forward-oriented disclosure). Then, we show that an exogenous increase in the cultural time orientation of the firm's investor base results in more long-term and less future-oriented disclosure. Lastly, we find that the preferences of culturally long-term oriented investors in terms of disclosure are associated with lower liquidity and higher cost of equity capital, especially when the cultural distance between the firm and the investor base is large. Our results show that cultural differences are a channel through which investors shape firms' disclosures. More specifically, we document time orientation as such channel, using disclosure attributes that directly reflect differences in time horizon and future versus past and present time orientation. However, we acknowledge that, by inferring culture based on the country of incorporation of the investment funds in our sample, we cannot fully isolate cultural time orientation, nor ascertain that cultural time orientation is a perfectly defined cultural dimension. Future studies may take advantage of more granular measurement of culture in appropriate settings.

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APPENDIX A: Variable Definitions

Variable	Definition
Textual Variables (all calculated based on the full text of corporate annual reports in English)	
Short_Long_Horizon	Number of short-term oriented words divided by the number of long-term oriented words as per the dictionary of Brochet et al. (2016)
Henry_FLS	The number of future-oriented words following Henry (2006) scaled by the total number of words in the annual report.
Li_FLS	The number of future-oriented sentence following Li (2010) scaled by the total number of words in the annual report.
BRV_FLS	The percentage of forward-looking sentences in the annual report, following Bozanic et al. (2018).
Future_LIWC	The number of future-oriented words from the Diction future wordlist scaled by the total number of words in the annual report.
Past_LIWC	The number of past-oriented words from the Diction future wordlist scaled by the total number of words in the annual report.
Present_LIWC	The number of present-oriented words from the Diction future wordlist scaled by the total number of words in the annual report.
Disclosure_time	The first principal component of Short_Long_Horizon, Henry_FLS, Li_FLS, Future_LIWC, Past_LIWC, and Present_LIWC
FOG	(words per sentence + percentage of complex words) ×0.4
Numbers per sentence	The number of numbers per sentence following Siano and Wysocki (2018)
Log(words)	Log of one plus the number of words in the annual report.
Disclosure_readability	The first principal component of FOG, Numbers per sentence, and Log(words).
Country Level Variables (assigned to firms based on the country in which they are headquartered)	
LTO	Hofstede's country-level long term orientation index.
Strong_FTR	An indicator equal to 1 if the dominant language in the country is classified as having a strong future time reference, following Chen (2013).
WVS LTO	First factor using the world value survey as per Minkov and Hofstede (2012). It is constructed as: 0.84 x Service to others (A007) -0.82 x Thrift (A038) -0.77 x Perseverance (A039) +0.68 x National Pride (G006) + 0.65 x Religious Faith (A040)+0.63 x Parental Pride (D054)+0.62 Parents do their best (A026) + 0.57 x Live up to friends' expectations (D055) -0.04 x Divorce justifiable (F121) +0.1 Always love parents (A025)
Culture_time	Sum of the standardized values of LTO Orientation, FTR, and WVS_LTO rescaled to range from short to long term orientation.
Power Distance	Hofstede's country-level power distance index.
Individualism	Hofstede's country-level individualism index.
Masculinity	Hofstede's country-level masculinity index.
Uncertainty Avoidance	Hofstede's country-level uncertatinty avoidance index.
Indulgence	Hofstede's country-level indulgence index.
Rule of Law	Rule of law as per La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998).
Investor Base Variables	
LTO Fund	Firm-year average of the Hofstede's long term orientation index of the investors' country.
Average FTR Fund	Firm-year average of the FTR of the investors' country.
WVS LTO Fund	Firm-year average of the WVS_LTO of the investors' country.
Culture_time_investors	Sum of the standardize values of LTO fund, Average FTR Fund, and WVS_LTO Fund rescaled to range from short to long term orientation.
Culture_time_active_investors	Sum of the standardized values of LTO, Average FTR, and WVS_LTO rescaled

	to range from short to long term orientation, for funds identified as active. Active funds are those whose style as provided by Facset is “Aggressive Growth”, “Deep Value”, “GARP”, “Growth”, “Value”, or “Yield”.
Culture_time_passive_investors	Sum of the standardized values of LTO, Average FTR, and WVS_LTO rescaled to range from short to long term orientation, for funds identified as passive. Passive funds are those whose style as provided by Facset is “Index”.
MSCI	An indicator variable equal to 1 if the firm belongs to the MSCI index that year and 0 otherwise.
Power Distance Fund	Firm-year average of the Hofstede’s power distance index of the investors' country.
Individualism Fund	Firm-year average of the Hofstede’s individualism index of the investors' country.
Masculinity Fund	Firm-year average of the Hofstede’s masculinity index of the investors' country.
Uncertainty Avoidance Fund	Firm-year average of the Hofstede’s uncertainty avoidance index of the investors' country.
Indulgence Fund	Firm-year average of the Hofstede’s indulgence index of the investors' country.
Domestic Holding	Firm-year average of percentage of domestic institutional ownership.
Firm Level Variables	
Spread	The yearly median of the difference between the ask and bid prices deflated by the midpoint of the ask and bid prices.
Zero Returns	The proportion of trading days with zero daily stock returns out of all potential trading days in a given year.
Amihud	The yearly median of the daily ratio of absolute stock return to its dollar volume (Amihud 2002).
Information Asymmetry	Principal component of Spread, Amihud, and Zero Ret.
r_ct	Implied cost of capital measure based on the model of Claus and Thomas (2001).
r_gls	Implied cost of capital measure based on the model of Gebhardt, Lee, and Swaminathan (2001).
r_oj	Implied cost of capital measure based on the model of Ohlson and Juettner-Nauroth (2005)
r_peg	Implied cost of capital measure based on the modified PEG ratio model by Easton (2004)
Cost of Capital	Average of r_ct, r_gls, r_oj, and r_peg
Log(Total Assets USD)	Log of total assets in USD.
%Closely Held Shares	Percentage of the strategic number of shares held by institutional investors.
Foreign Sales	Foreign sales (Worldscope item 07101) divided by sales (Worldscope item 01001).
Market-to-Book	Log market value of assets over the book value of assets.
Leverage	Total debt over book value of assets.
ROA	Net income over total value of assets.
ADR	American Depository Receipts, an indicator variable equal to 1 if the firm is cross-listed, and 0 otherwise.
Log Analysts	Log of the number of analysts covering the firm.
Loss	An indicator variable equal to 1 for firms reporting negative earnings.
Dividends	Cash dividends divided by total assets
Guidance	An indicator variable equal to 1 if the firm issued earnings guidance during the fiscal year and zero otherwise
CFO Volatility	5-year standard deviation of cash from operation (minimum 3 years of data required) scaled by total assets.
IFRS	An indicator variable equal to 1 if the firm belongs to a country that adopted IFRS, and 0 otherwise.

APPENDIX B: Principal component Analysis

We combine individual disclosure attributes for long-term orientation and readability into two disclosure factors, both for parsimony and to improve the signal to noise ratio compared to using individual proxies.

The first factor captures time orientation. To this end, we perform a principal component analysis including the following variables: *Short_Long_Horizon, Henry_FLS, Li_FLS, BRV_FLS, Future_LIWC, Past_LIWC, Present_LIWC.* The loadings for each component are presented in Table A1. We use the first component that explains 40% of the variation in the individual proxies and has an eigenvalue of 2.81. Consistent with our predictions, the variables *Short_Long_Horizon, Henry_FLS, Li_FLS, BRV_FLS, Future_LIWC* load positively while *Past_LIWC* and *Present_LIWC* load negatively. That is, the higher the factor, the more short-term and forward-looking oriented the text in the annual report. In our main analysis, we multiply the factor by -1 to capture long-term orientation.

The second factor we use in our analysis captures the readability of the annual reports. Therefore, we perform a principal component analysis including the following variables: *FOG, Numbers per sentence*, and *Log(words).* The loadings for each component are presented in table A2. We use the first component that explains 47% of the variation in the underlying proxies and has an eigenvalue of 1.42. The variables *FOG and Log(words)* load positively while *Numbers per sentence* loads negatively. Therefore, a greater value of the first component is associated with less readability. In our analysis, we multiply the factor by -1 to capture greater readability.

Table A1: Factor Loadings for *Disclosure_time*

Panel A: Factor loadings

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6	Comp7
Short_Long_Horizon	0.4685	-0.1961	0.035	0.2765	0.4298	0.6699	0.1759
Henry_FLS	0.5131	-0.0321	0.0252	0.2832	0.2198	-0.463	-0.6262
Li_FLS	0.5261	0.0441	0.0911	-0.1391	-0.0409	-0.4584	0.6942
BRV_FLS	0.4067	0.2741	-0.1725	-0.1104	0.7827	0.296	-0.1315
Future_LIWC	0.1873	0.6018	-0.1315	-0.6497	0.3321	0.1526	-0.1728
Past_LIWC	-0.1831	0.5555	-0.4709	0.5775	0.2053	-0.1123	0.2189
Present_LIWC	-0.0809	0.4612	0.8492	-0.2372	0.0136	0.0567	0.0048

Panel B: Eigenvalue

Component	Eigenvalue	Proportion	Cumulative
1	2.81	0.40	0.40
2	1.45	0.21	0.61
3	0.88	0.13	0.73
4	0.66	0.09	0.83
5	0.58	0.08	0.91
6	0.36	0.05	0.96
7	0.26	0.04	1.00

Notes: This table presents summary results for the principal component analysis of our proxies for disclosure time orientation. Panel A reports factor loadings and Panel B reports eigenvalues, proportion explained by factor and cumulative. The variable *Disclosure_time* is the first factor from Panel A.

Table A2: Factor Loadings for *Disclosure_readability*

Panel A: Factor loadings

Variable	Component 1	Component 2	Component 3
FOG	0.4679	0.8156	-0.3404
Numbers per sentence	-0.5786	0.5738	0.5797
Log(words)	0.6681	-0.0742	0.7403

Panel B: Eigenvalue

Component	Eigenvalue	Proportion	Cumulative
1	1.42	0.47	0.47
2	0.92	0.31	0.78
3	0.66	0.22	1.00

Notes: This table presents summary results for the principal component analysis of our proxies for disclosure readability. Panel A reports factor loadings and Panel B reports eigenvalues, proportion explained by factor and cumulative. The variable *Disclosure_readability* is the first factor from Panel A.

Table 1 Sample selection

	Firm-Year Observations
Firm-Years in Worldscope with text files	203,708
Less: Incomplete financials, industry classification	33,826
Less: Missing information in Factset	78,671
Less: Countries with fewer than 10 observations	22
Less: Missing MSCI coverage	895
Less: Missing Country level attributes	4,398
Less: Missing text variables	1,698
Total number of observations	**84,198**

Notes: This table describes our sample. The sample consists of 84,198 firm-year observations from 2000 to 2015. The sample primarily results from the intersection of Worldscope for financial information, FactSet for fund holdings, and Bureau Van Dijk's Global Reports, MSCI index composition (available since year 2000), and SEC EDGAR database for annual reports.

Table 2: Country-Level Descriptive Statistics

Country	# Firms	# Funds	Cultural Time Orientation	Disclosure Time Orientation	Portfolio Turnover
PHILIPPINES	116	3	-3.50	0.91	0.31
PAKISTAN	58	64	-2.59	1.48	0.26
IRELAND	70	297	-2.44	1.19	0.2
SOUTH AFRICA	173	465	-2.21	0.98	0.21
UNITED STATES	4,858	13,173	-2.10	-1.84	0.19
MEXICO	62	9	-1.85	1.22	0.25
ARGENTINA	18	8	-1.72	0.90	0.23
PORTUGAL	31	241	-1.25	1.28	0.2
CANADA	1,522	2,560	-1.15	0.54	0.18
CHILE	20	6	-1.10	1.06	0.23
AUSTRALIA	1,057	529	-1.03	1.01	0.17
TURKEY	116	15	-0.85	1.32	0.27
BRAZIL	165	292	-0.80	0.82	0.2
GREECE	106	109	-0.56	1.20	0.2
INDIA	723	793	-0.54	1.63	0.17
NEW ZEALAND	94	21	-0.12	1.24	0.16
SPAIN	80	5,167	0.05	1.28	0.15
UNITED KINGDOM	1,125	5,351	0.43	0.98	0.17
ITALY	199	571	0.51	1.41	0.17
POLAND	106	253	0.90	0.86	0.26
SINGAPORE	415	426	0.95	1.07	0.19
FRANCE	301	2,758	1.20	1.11	0.17
NORWAY	182	309	1.35	0.87	0.21
HONG KONG	201	579	1.87	1.57	0.19
DENMARK	83	473	1.88	0.96	0.19
FINLAND	115	308	2.55	1.04	0.18
CZECH REPUBLIC	14	57	2.95	1.46	0.19
SWEDEN	202	799	3.54	1.23	0.2
SOUTH KOREA	58	8	3.60	1.24	0.23
AUSTRIA	67	483	3.67	1.45	0.16
SWITZERLAND	175	1,909	4.15	1.49	0.16
BELGIUM	100	577	4.44	1.14	0.18
NETHERLANDS	149	627	4.61	1.07	0.18
CHINA	166	359	5.70	1.35	0.17
GERMANY	482	6,444	5.82	1.29	0.16
TAIWAN	135	368	6.37	0.88	0.13
JAPAN	733	281	6.49	1.38	0.2
			Above-median *Culture_time*	1.25	0.17
			Below-median *Culture_time*	-0.51	0.18
			T-stat for difference (p-value)	16.03 (<0.001)	3.01 (0.003)

Notes: This table presents descriptive statistics by country. The sample period is 2000-2015. # Firms and # Funds indicate the unique number of firms and funds in our sample that are headquartered in each country. Cultural time orientation (i.e., *Culture_time*) is a time-invariant country-level variable. Disclosure time orientation (i.e., *Disclosure_time*) is a firm-year level construct. Portfolio turnover is a fund-year level construct. In this table, we report country-level means across our sample of 84,198 firm-year observations for disclosure time orientation and across our sample of 226,879 fund-year observations for portfolio turnover. All variables are defined in Appendix A.

Table 3: Descriptive Statistics

Variable	N	Mean	SD	P25	Median	P75	Min	Max
Textual Variables								
Short_Long_Horizon	84,198	0.44	0.3	0.21	0.35	0.59	0.09	1.62
Henry_FLS	84,198	0.57	0.22	0.39	0.55	0.72	0.18	1.1
Li_FLS	84,198	0.38	0.3	0.14	0.22	0.66	0.03	1.06
BRV_FLS	84,198	0.06	0.04	0.03	0.07	0.09	0	0.15
Future_LIWC	84,198	0.59	0.32	0.36	0.5	0.73	0.15	1.77
Past_LIWC	84,198	1.41	0.27	1.22	1.39	1.59	0.78	2.08
Present_LIWC	84,198	2.68	0.49	2.32	2.61	3.02	1.74	4
Disclosure_time	84,198	0	1.68	-1.39	0.54	1.35	-5.79	2.99
FOG	84,198	22	1.86	20.7	21.85	23.15	18.4	26.6
Numbers per sentence	84,198	51.86	74.02	1.5	24.87	64.5	0.86	325
Log(words)	84,198	10.3	0.77	9.81	10.36	10.83	5.55	13.9
Disclosure_readability	84,198	0	1.19	-0.8	-0.08	0.76	-4.63	4.71
Country Level Variables								
LTO	84,198	0.43	0.21	0.26	0.36	0.53	0.2	1
Strong_FTR	84,198	0.73	0.35	0.91	0.91	0.91	0	0.98
WVS LTO	84,198	0.32	0.42	0.09	0.46	0.66	-0.62	1.33
Culture_time	84,198	0	2.72	-2.1	-1.15	0.95	-3.5	6.49
Power Distance	84,198	45.4	14.38	38	40	50	11	94
Individualism	84,198	73.98	22.31	67	89	91	14	91
Masculinity	84,198	59.01	15.39	56	62	62	5	95
Uncertainty Avoidance	84,198	50.87	18.5	46	46	51	8	112
Indulgence	84,198	59.4	15.44	48	68	68	0	97
Rule of Law	84,198	8.97	2.01	8.57	10	10	0	10
Investor Base Variables								
LTO Fund	84,198	0.38	0.14	0.27	0.33	0.47	0.2	0.93
Strong FTR Fund	84,198	0.85	0.27	0.86	0.98	1	0	1
WVS LTO Fund	84,198	0.41	0.28	0.21	0.5	0.65	-0.62	1.33
Culture_time_investors	84,198	0	2.72	-2.19	-0.99	1.53	-4.41	10.54
MSCI	84,198	0.18	0.38	0	0	0	0	1
Power Distance Fund	84,198	41.47	8.35	38.89	39.9	40.12	11	104
Individualism Fund	84,198	81.57	13.1	77.05	87.8	90.59	14.01	91
Masculinity Fund	84,198	57.03	11.23	55.3	60.99	62	5	95
Uncertainty Avoidance Fund	84,198	47.66	10.12	45.64	46.06	48	8	112
Indulgence Fund	84,198	63.29	9.67	62.85	67.71	68	0.01	97
Foreign Institutional Holding	84,198	0.03	0.04	0	0.01	0.04	0	0.19
Institutional Holdings US	84,198	0.08	0.11	0	0.02	0.11	0	0.43
Firm Level Variables								
Spread	63,648	0.02	0.02	0	0.01	0.02	0	0.17
Zero Returns	80,320	0.13	0.14	0.05	0.07	0.15	0.03	0.72
Amihud	80,209	1.36	5.13	0	0.02	0.26	0	56.65
Information Asymmetry	63,591	0	1.53	-0.82	-0.58	0.07	-0.95	11.89

r_ct	59,574	0.1	0.07	0.06	0.1	0.14	0	0.38
r_gls	59,574	0.2	0.25	0	0.1	0.34	0	0.89
r_oj	59,574	0.13	0.1	0.07	0.11	0.17	0	0.47
r_peg	59,574	0.13	0.1	0.07	0.12	0.18	0	0.52
Cost of Capital	59,574	0.19	0.1	0.11	0.16	0.24	0.06	0.53
Domestic Holdings	84,198	0.09	0.11	0	0.04	0.14	0	0.43
Log(Total Assets USD)	84,198	13.38	1.81	12.08	13.37	14.72	9.35	16.73
%Closely Held Shares	84,198	0.29	0.25	0.04	0.23	0.49	0	0.8
Foreign Sales	84,198	26.18	31.89	0	9	49.73	0	99.72
Market-to-Book	84,198	1.77	1.1	1.04	1.37	2.06	0.55	7.12
Leverage	84,198	0.22	0.19	0.03	0.2	0.35	0	0.65
ROA	84,198	0.04	0.13	0.01	0.06	0.11	-0.58	0.23
ADR	84,198	0.08	0.27	0	0	0	0	1
Log Analysts	84,198	1.53	0.98	0.69	1.61	2.3	0	3.14
Loss	84,198	0.27	0.45	0	0	1	0	1
Dividends	84,198	0.02	0.02	0	0.01	0.02	0	0.09
Guidance	84,198	0.18	0.39	0	0	0	0	1
CFO Volatility	84,198	0.07	0.07	0.02	0.04	0.08	0.01	0.34
IFRS	84,198	0.32	0.47	0	0	1	0	1

Notes: This table presents descriptive statistics. The sample consists of 84,198 firm-year observations from 2000 to 2015. All variables are defined in Appendix A.

Table 4: Culture and Disclosure Time Orientation

VARIABLES	(1) Short_Long_ Horizon	(2) Henry_FLS	(3) Li_FLS	(4) BRV_FLS	(5) Future_LIWC	(6) Past_LIWC	(7) Present_LIWC	(8) Disclosure __ time	(9) Disclosure __ time
Culture_time	-0.028***	-0.007***	-0.023***	-0.002***	-0.021***	-0.003	-0.000	0.144***	
	(-9.458)	(-6.533)	(-12.192)	(-12.580)	(-8.247)	(-1.113)	(-0.086)	(10.432)	
Culture_time_manager									0.012***
									(3.791)
Culture_time_investors	-0.011***	-0.006***	-0.009***	-0.001***	-0.010***	0.005***	0.010***	0.071***	0.013***
	(-6.712)	(-6.135)	(-6.119)	(-7.666)	(-6.424)	(4.243)	(3.689)	(8.286)	(4.086)
Domestic Holdings	0.373***	-0.055**	0.570***	0.031***	0.302***	-0.190***	-0.624***	-2.619***	0.134
	(10.009)	(-2.450)	(20.164)	(9.281)	(9.840)	(-6.459)	(-12.987)	(-16.168)	(1.416)
Log(Total Assets USD)	0.022***	-0.003**	0.014***	-0.000	0.016***	-0.016***	-0.066***	-0.110***	-0.012
	(5.700)	(-2.249)	(5.500)	(-0.431)	(3.284)	(-8.245)	(-13.746)	(-5.597)	(-1.581)
Rule of Law	0.012***	-0.000	0.035***	0.002***	0.017***	-0.017***	-0.036***	-0.149***	-0.011
	(4.173)	(-0.162)	(15.381)	(15.196)	(5.965)	(-7.376)	(-8.920)	(-9.875)	(-1.298)
%Closely Held Shares	0.026***	-0.048***	0.052***	0.001	-0.006	-0.022***	-0.002	-0.104**	0.020
	(3.592)	(-7.266)	(5.004)	(1.218)	(-0.599)	(-2.910)	(-0.156)	(-2.043)	(0.909)
Foreign Sales	-0.000***	0.000***	-0.001***	-0.000***	-0.001***	0.000	-0.000	0.003***	0.001***
	(-4.425)	(2.967)	(-7.272)	(-6.394)	(-5.437)	(1.181)	(-0.167)	(6.043)	(4.154)
Market-to-Book	0.011***	-0.006***	0.016***	0.001***	0.015***	-0.011***	-0.004	-0.081***	-0.034***
	(3.176)	(-3.728)	(6.209)	(6.113)	(5.797)	(-6.421)	(-0.752)	(-5.279)	(-5.479)
Leverage	-0.016*	-0.054***	-0.040***	-0.001	0.007	0.011	-0.099***	0.100**	0.076**
	(-1.711)	(-7.742)	(-3.919)	(-0.606)	(0.778)	(1.096)	(-5.140)	(2.265)	(2.246)
ROA	-0.118***	-0.025**	-0.123***	-0.020***	-0.216***	0.096***	0.153***	1.055***	0.887***
	(-5.867)	(-2.004)	(-5.627)	(-8.456)	(-13.879)	(7.091)	(5.449)	(10.888)	(12.353)
ADR	-0.073***	-0.002	-0.049***	0.001	-0.065***	0.016**	0.075***	0.330***	0.007
	(-4.990)	(-0.266)	(-5.649)	(0.897)	(-4.448)	(2.238)	(5.095)	(5.159)	(0.363)
Log Analysts	-0.006	0.018***	0.008**	0.001***	0.002	-0.018***	0.018***	-0.033	-0.087***
	(-1.393)	(9.295)	(2.025)	(2.721)	(0.435)	(-4.800)	(4.784)	(-1.382)	(-9.420)
Loss	0.022***	0.016***	-0.000	0.001***	0.018***	0.030***	0.008	-0.075***	-0.083***
	(5.324)	(5.276)	(-0.014)	(2.730)	(4.829)	(7.560)	(1.213)	(-4.024)	(-5.360)
Dividends	-0.403***	-0.275***	-0.636***	-0.039***	-0.422***	0.335***	-0.196	3.064***	0.383
	(-2.749)	(-3.730)	(-4.926)	(-4.029)	(-3.730)	(3.471)	(-1.218)	(4.537)	(1.256)
Guidance	-0.012	-0.003	-0.012**	0.002***	0.002	-0.024***	-0.008	0.013	-0.087***
	(-1.079)	(-0.549)	(-2.027)	(2.714)	(0.146)	(-2.986)	(-0.545)	(0.250)	(-3.623)
CFO Volatility	0.374***	0.031	0.285***	0.026***	0.309***	0.030	-0.150***	-1.917***	-1.153***
	(7.853)	(1.262)	(7.121)	(6.452)	(6.580)	(0.977)	(-3.469)	(-7.720)	(-7.438)

IFRS	-0.052***	-0.092***	-0.123***	-0.007***	-0.052***	-0.057***	0.263***	0.604***	-0.236***
	(-2.687)	(-11.496)	(-9.527)	(-6.771)	(-3.041)	(-6.903)	(9.701)	(6.616)	(-3.574)
Power Distance Fund	-0.002***	-0.001***	-0.002***	-0.000***	-0.001***	0.001**	0.000	0.013***	-0.001
	(-6.285)	(-4.849)	(-9.197)	(-8.819)	(-5.313)	(2.030)	(0.209)	(11.222)	(-0.948)
Individualism Fund	0.000	-0.002***	0.002***	-0.000	0.001***	0.001***	-0.001	-0.003***	-0.001
	(1.535)	(-8.403)	(6.373)	(-0.162)	(3.838)	(3.961)	(-1.216)	(-2.595)	(-1.333)
Masculinity Fund	-0.001***	0.001***	-0.001***	-0.000	-0.000**	0.001***	0.000	0.004***	0.001*
	(-6.542)	(6.222)	(-3.775)	(-0.967)	(-2.098)	(3.020)	(0.378)	(3.525)	(1.662)
Uncertainty Avoidance Fund	0.002***	0.000	0.001***	0.000***	0.001***	-0.002***	-0.003***	-0.009***	-0.000
	(7.019)	(0.789)	(3.824)	(3.507)	(5.311)	(-7.383)	(-7.620)	(-6.080)	(-1.036)
Indulgence Fund	-0.001***	0.002***	-0.002***	-0.000***	-0.002***	-0.002***	0.002**	0.008***	0.001
	(-2.673)	(6.535)	(-5.621)	(-5.183)	(-3.325)	(-5.853)	(2.077)	(3.333)	(0.601)
Power Distance	0.002***	-0.004***	0.004***	0.000**	0.002***	-0.001***	-0.006***	-0.014***	-0.004***
	(6.250)	(-16.045)	(12.197)	(2.476)	(6.185)	(-3.578)	(-8.987)	(-7.099)	(-4.523)
Individualism	0.002***	-0.000	0.003***	0.000***	0.002***	0.002***	-0.003***	-0.012***	-0.001
	(5.124)	(-1.503)	(15.674)	(3.430)	(5.832)	(9.130)	(-4.252)	(-8.760)	(-0.897)
Masculinity	-0.001***	0.001***	0.002***	0.000***	0.001***	0.000	-0.004***	-0.009***	0.002*
	(-2.716)	(7.713)	(12.561)	(6.934)	(5.585)	(0.722)	(-6.668)	(-7.643)	(1.750)
Uncertainty Avoidance	0.001***	-0.001***	-0.001***	-0.000***	-0.002***	0.001***	-0.001***	0.006***	0.003***
	(3.641)	(-7.760)	(-7.279)	(-9.058)	(-10.069)	(2.581)	(-4.507)	(7.022)	(3.694)
Indulgence	-0.000	0.001***	-0.000	0.000***	0.001***	-0.001**	0.005***	-0.005***	-0.005***
	(-0.250)	(5.680)	(-0.806)	(8.397)	(6.502)	(-2.532)	(11.680)	(-2.874)	(-3.140)
Observations	84,198	84,198	84,198	84,198	84,198	84,198	84,198	84,198	84,198
R-squared	0.3819	0.3347	0.6230	0.2638	0.4088	0.1207	0.3845	0.6176	0.7660
Cluster	Firm-Year	Firm-Year	Firm-Year	Firm-Year	Firm-Year	Firm-Year	Firm-Year	Firm-Year	Firm-Year
Year FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	No	No	No	No	No	No	No	Yes

Notes: This table presents coefficient estimates from the OLS regressions of disclosure attributes on various country-, firm-, manager-, and fund-level characteristics. All variables are defined in Appendix A. t-statistics are reported in parentheses below the regression coefficients. All regressions include year and industry fixed effects. Additionally, in column (8), the regression includes country fixed effects. We cluster standard errors at the firm and year levels. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 5: Causal Effect of Investor Base on Disclosure Time Orientation

Panel A: Difference in Difference

VARIABLES	(1) Disclosure_time	(2) Disclosure_time
MSCI × Dm Culture_time	-0.249***	-0.233***
	(-4.624)	(-3.953)
MSCI	0.163***	0.141***
	(5.299)	(4.083)
MSCI x *Dm Culture_time+MSCI p-value*	0.009	0.012
Domestic Holdings	0.201***	0.335**
	(2.667)	(2.174)
Log(Total Assets USD)	-0.064***	-0.032
	(-6.127)	(-1.492)
%Closely Held Shares	-0.031	-0.036
	(-1.453)	(-0.858)
Foreign Sales	0.000	0.000
	(1.116)	(0.689)
Market-to-Book	-0.015***	-0.005
	(-2.795)	(-0.464)
Leverage	0.040	0.026
	(1.027)	(0.337)
ROA	0.383***	0.353***
	(6.679)	(2.924)
ADR	0.056***	0.060**
	(3.104)	(2.071)
Log Analysts	0.016**	0.041***
	(2.090)	(2.626)
Loss	-0.021**	-0.031*
	(-2.086)	(-1.660)
Dividends	-0.944***	-1.268**
	(-3.606)	(-2.348)
Guidance	-0.072***	-0.101***
	(-7.740)	(-5.753)
CFO Volatility	-0.478***	-0.507**
	(-4.768)	(-2.331)
IFRS	-0.176***	-0.166***
	(-9.894)	(-5.357)
Power Distance Fund	-0.001	-0.003*
	(-1.424)	(-1.685)
Individualism Fund	-0.000	-0.002
	(-0.575)	(-1.120)
Masculinity Fund	0.001	-0.001
	(1.644)	(-0.648)
Uncertainty Avoidance Fund	-0.000	0.000
	(-0.913)	(0.118)
Indulgence Fund	-0.001	-0.001
	(-1.354)	(-0.565)
Observations	84,198	21,279
R-squared	0.8772	0.8527
Sample	Firm	Firm
Cluster	Yes	Yes
FE	Yes	Yes

Panel B: Instrumental Variable

VARIABLES	(1): First Stage Culture_Time_Investors	(2): Second Stage Disclosure_time
MSCI × Dm Culture_time	-0.557***	
	(-4.437)	
MSCI	0.354***	
	(4.705)	
MSCI x *Dm Culture_time+MSCI p-value*	0.003	
Culture_time_investors_IV		0.459***
		(4.102)
Domestic Holdings	0.096	0.156*
	(0.887)	(1.908)
Log(Total Assets USD)	0.003	-0.065***
	(0.156)	(-5.613)
%Closely Held Shares	-0.018	-0.023
	(-0.475)	(-0.924)
Foreign Sales	0.000	0.000
	(0.317)	(0.740)
Market-to-Book	0.007	-0.018***
	(0.850)	(-2.992)
Leverage	-0.083	0.078*
	(-1.337)	(1.689)
ROA	-0.040	0.401***
	(-0.436)	(6.183)
ADR	0.021	0.047**
	(0.591)	(2.119)
Log Analysts	-0.001	0.017*
	(-0.084)	(1.945)
Loss	-0.025	-0.010
	(-1.583)	(-0.832)
Dividends	0.715	-1.270***
	(1.600)	(-3.987)
Guidance	-0.022	-0.062***
	(-1.101)	(-5.047)
CFO Volatility	0.158	-0.551***
	(0.928)	(-4.773)
IFRS	-0.111***	-0.125***
	(-3.011)	(-4.770)
Power Distance Fund	-0.170***	0.077***
	(-36.149)	(3.920)
Individualism Fund	-0.141***	0.064***
	(-41.732)	(4.041)
Masculinity Fund	-0.015***	0.008***
	(-6.027)	(3.759)
Uncertainty Avoidance Fund	0.062***	-0.029***
	(25.391)	(-4.067)
Indulgence Fund	-0.052***	0.023***
	(-8.411)	(3.179)
Observations	84,198	82,000
R-squared	0.8984	-0.4142
Cluster	Firm	Firm
FE	Firm, Year	Firm, Year

Notes: This table presents regression results for the estimation of disclosure time orientation (*Disclosure_time*). Panel A presents a difference-in-difference specification using firms' MSCI index inclusion as an exogenous shock to their investor base. In the second column, the sample is limited to stocks added to the MSCI index and a matched sample. Panel B presents an instrumental variable specification using MSCI index inclusion as the instrument. All variables are defined in Appendix A. t-statistics are reported in parentheses below the regression coefficients. We cluster standard errors at the firm and year levels. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 6: Path Analysis

Panel A: Information Asymmetry

VARIABLES	(1) Disclosure_ time	(2) Spread	(3) Zero_Ret	(4) Amihud	(5) Information_ Asymmetry
Culture time investors	0.00855***	-0.00010	-0.00100	-0.04180	-0.01077
	(3.16081)	(-0.90264)	(-1.45733)	(-1.37233)	(-1.42377)
Culture time manager	0.01302***	0.00012**	0.00053	0.02066*	0.00723**
	(3.52971)	(2.18801)	(1.53416)	(1.84803)	(2.03269)
Disclosure time		0.00096***	0.00285***	0.18737***	0.05518***
		(7.48193)	(3.60444)	(5.90790)	(6.53245)
Indirect Effect		0.00001***	0.00002**	0.00160***	0.00047***
		(2.88962)	(2.37111)	(2.77283)	(2.82879)
Total_Effect		-0.00010	-0.00097	-0.04020	-0.01030
		(-0.83029)	(-1.42148)	(-1.31827)	(-1.35994)
Observations	63,591	63,591	63,591	63,591	63,591
Cluster	Firm	Firm	Firm	Firm	Firm
FE	C, Y, I	C, Y, I	C, Y, I	C, Y, I	C, Y, I
Controls	Yes	Yes	Yes	Yes	Yes

Panel B: Cost of Capital

VARIABLES	(1) Disclosure_ time	(2) r_ct	(3) r_gls	(4) r_oj	(5) r_peg	(6) Cost of Capital
Culture time investors	0.01234***	0.00022	-0.00016	-0.00020	-0.00045	0.00061
	(3.42752)	(0.57325)	(-0.19242)	(-0.44679)	(-0.93604)	(1.29807)
Culture time manager	0.00977***	0.00018	-0.00040	0.00044*	0.00042	0.00026
	(2.77456)	(0.84694)	(-0.60947)	(1.72630)	(1.49900)	(0.91416)
Disclosure time		0.00085**	-0.00011	0.00468***	0.00451***	0.00168***
		(2.04409)	(-0.08361)	(9.04538)	(8.13556)	(3.00695)
Indirect Effect		0.00001*	-0.00000	0.00006***	0.00006***	0.00002**
		(1.76813)	(-0.08360)	(3.18648)	(3.13149)	(2.24267)
Total_Effect		0.00023	-0.00016	-0.00015	-0.00039	0.00063
		(0.60073)	(-0.19415)	(-0.31972)	(-0.81942)	(1.34303)
Observations	59,574	59,574	59,574	59,574	59,574	59,574
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
FE	C, Y, I	C, Y, I	C, Y, I	C, Y, I	C, Y, I	FE
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table presents coefficient estimates from a structural equation model when estimating disclosure time orientation (*Disclosure_time*) and market outcome variables. Panel A presents results when estimating liquidity measures. Panel B presents results when estimating implied cost of capital measures. All variables are defined in Appendix A. C, Y, I indicate country, year, and industry fixed effects. T-statistics are reported in parentheses below the regression coefficients. We cluster standard errors at the firm level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 7: Partition by Cultural Misalignment

	(1)	(2)	(3)	(4)	(5)	(6)
	Low cultural distance			High cultural distance		
VARIABLES	Disclosure_ time	Information Asymmetry	Cost of Capital	Disclosure_ time	Information Asymmetry	Cost of Capital
Culture_time_Investor	0.00424	-0.09064***	0.00149*	0.01409***	-0.00253	0.00062
	(0.85736)	(-8.37060)	(1.64741)	(3.79409)	(-0.24525)	(1.00204)
Culture_time_manager	0.01210***	0.00336	0.00029	0.01136**	0.01521***	0.00029
	(2.95582)	(1.03391)	(0.82870)	(2.53382)	(2.76137)	(0.70407)
Disclosure_time		0.03175***	0.00135*		0.07407***	0.00207**
		(3.86194)	(1.89886)		(5.56973)	(2.56484)
Indirect_Effect		0.00013	0.00001		0.00104***	0.00003**
		(0.83989)	(0.77492)		(3.12798)	(2.12051)
Total_Effect		-0.09051***	0.00150*		-0.00148	0.00065
		(-8.34758)	(1.65371)		(-0.14380)	(1.04974)
Observations	42,919	32,861	32,357	41,279	30,730	27,217
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
FE	Year, Industry, Country	Year, Industry, Country	Year, Industry, Country	Year, Industry, Country	Year, Industry, Country	Year, Industry, Country
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table presents coefficient estimates from a structural equation model when estimating disclosure time orientation (*Disclosure_time*) and market outcome variables (*Information Asymmetry* and *Cost of Capital*) separately for observations where the absolute difference between *Culture_time* and *Culture_time_investors* is below the sample median (low cultural distance) or above the sample median (high cultural distance). All variables are defined in Appendix A. All regressions include country, year, and industry fixed effects. T-statistics are reported in parentheses below the regression coefficients. We cluster standard errors at the firm level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 8: Active vs. Passive Investors

Panel A : MSCI Inclusion

VARIABLES	(1) First Stage Culture_time Active investors	(2) First Stage Culture_time Passive investors	(3) Second Stage Disclosure_time Active investors	(4) Second Stage Disclosure_time Passive investors
Culture_time_active_investors_IV			0.358***	
			(4.094)	
Culture_time_passive_investors_IV				0.000
				(0.033)
MSCI x Dm Cult_time	-0.311**	-3.248***		
	(-1.977)	(-11.198)		
MSCI	0.349***	0.832***		
	(4.340)	(11.092)		
Observations	81,664	59,549	79,564	57,910
R-squared	0.8546	0.7671	-0.3356	0.0224
Cluster	Firm	Firm	Firm	Firm
Year FE	Yes	Yes	Yes	Yes
Ind FE	No	No	No	No
Country FE	No	No	No	No
Firm FE	Yes	Yes	Yes	Yes

Table 8, continued

Panel B : Path Analysis

VARIABLES	(1) Disclosure_time	(2) Disclosure_time	(3) Information Asymmetry	(4) Cost of Capital
Culture_time_active_investors	0.00964***		-0.01389**	0.00009
	(3.65815)		(-2.26507)	(0.23371)
Culture_time_passive_investors		0.00257	-0.02874***	-0.00019
		(1.25819)	(-9.54392)	(-0.67093)
Culture_time_manager	0.01303***	0.01303***	0.00830**	0.00027
	(3.51995)	(3.52935)	(2.40478)	(0.96539)
Disclosure_time			0.04963***	0.00167***
			(6.12417)	(2.97723)
Indirect_Effect_Active			0.00047***	0.00002**
			(3.12909)	(2.08161)
Indirect_Effect_Passive			0.00009	-0.00000
			(0.83678)	(-0.04352)
Total_Effect_Active			-0.01342**	0.00011
			(-2.18577)	(0.27250)
Total_Effect_Passive			-0.02865***	-0.00019
			(-9.50561)	(-0.67137)
Observations	61,813	62,186	61,813	58,634
Cluster	Firm	Firm	Firm	Firm
FE	Year, Industry, Country	Year, Industry, Country	Year, Industry, Country	Year, Industry, Country
Controls	Yes	Yes	Yes	Yes

Notes: This table presents regression results where the investor base is decomposed between active and passive institutional owners. Panel A reports regression results for the estimation of disclosure time orientation (*Disclosure_time*) with an instrumental variable specification using MSCI index inclusion as the instrument. Panel B presents coefficient estimates from a structural equation model when estimating disclosure time orientation (*Disclosure_time*) and market outcome variables (*Information Asymmetry* and *Cost of Capital*). Disclosure time orientation is separately estimated as a function of the cultural time orientation of institutional investors classified as active (column 1) and passive (column 2). Market outcomes are estimated jointly as a function of active and passive investors. All variables are defined in Appendix A. All regressions include country, year, and industry fixed effects. T-statistics are reported in parentheses below the regression coefficients. We cluster standard errors at the firm level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 9: Investor Conference Partition as a Mechanism

	(1)		(2)
	Attends Investor Conferences Abroad		Does not Attend Investor Conferences Abroad
VARIABLES	Disclosure_time		Disclosure_time
Cult_time_manager	0.012		0.014***
	(1.465)		(3.919)
Cult_time_investors	0.017**		0.007
	(2.316)		(1.105)
F-test Difference in Coefficient		0.310	
Observations	7,790		31,672
R-squared	0.7432		0.7648
Cluster	Firm-Year		Firm-Year
Year FE	Yes		Yes
Ind FE	Yes		Yes
Country FE	Yes		Yes
Firm FE	No		No

Notes: This table presents coefficient estimates from the OLS regressions of disclosure time orientation (*Disclosure_time*) on various country-, firm-, manager-, and fund-level characteristics. The sample is partitioned based on whether the firm attended investor conferences in a foreign country during the year (column 1) or not (column 2). Investor conference attendance is obtained from Capital IQ, with data available only as of 2009. All variables are defined in Appendix A. t-statistics are reported in parentheses below the regression coefficients. All regressions include country, year and industry fixed effects. We cluster standard errors at the firm and year levels for regressions. We cluster standard error at the firm level for assessments of significance across partitions. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Table 10: Other Disclosure Attributes

Panel A: Readability Measures

VARIABLES	(1) FOG	(2) Numbers per sentence	(3) Log(words)	(4) Disclosure_ readability	(5) Disclosure_ readability	(6) Disclosure_ readability
Culture_time_investors	-0.036***	1.643***	-0.009***	0.030***	0.005*	
	(-3.859)	(2.668)	(-3.582)	(4.961)	(1.905)	
Culture_time	-0.135***	4.807***	-0.059***	0.123***		
	(-11.541)	(10.386)	(-8.757)	(12.170)		
Culture_time_manager					-0.001	
					(-0.621)	
Culture_time_investors_IV						0.241***
						(3.134)
Observations	84,198	84,198	84,198	84,198	84,660	82,000
R-squared	0.1529	0.2893	0.4473	0.4454	0.6429	0.0204
Cluster	Firm-Year	Firm-Year	Firm-Year	Firm-Year	Firm-Year	Firm
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes	Yes	No
Country FE	No	No	No	No	Yes	No
Firm FE	No	No	No	No	No	Yes

Panel B: Path Analysis

VARIABLES	(1) Information_Asymmetry	(2) Cost of Capital
Indirect Effect Disclosure_time	0.00041***	0.00002***
	(3.44958)	(2.76765)
Indirect Effect Disclosure_readability	0.00008	-0.00001
	(0.89484)	(-1.50760)
Total Effect	-0.01030***	0.00063*
	(-3.09151)	(1.73868)
	0.00041***	0.00002***
Observations	63,591	59,574
Cluster	Firm	Firm
FE	Year, Industry, Country	Year, Industry, Country
Controls	Yes	Yes

Notes: Panel A presents coefficient estimates from the OLS regressions of disclosure attributes on various country-, firm-, manager-, and fund-level characteristics. In column 1, 2, and 3 the dependent variable is the Fog Index, the number of numbers per sentence, and the log of total words, respectively. In column 4, 5, and 6 the dependent variable is *Disclosure_readability*, which is derived from a principal component analysis of the three aforementioned variables. Panel B presents coefficient estimates from a structural equation model when estimating disclosure time orientation, readability and market outcome variables, all as a function of investor base cultural time orientation. For brevity, only the indirect effects of investor base on capital market outcomes via the variables of interest (and the total effect) are reported. All variables are defined in Appendix A. t-statistics are reported in parentheses below the regression coefficients. We cluster standard errors at the firm level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.