경영학석사학위논문

The Effect of Linguistic Distance upon Earnings Response Coefficient:

Comparing United States Firms with Cross-listed Foreign Firms

언어적 거리가 이익반응계수에 미치는 영향

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ABSTRACT

To gain insight into the channels through which the investors evaluate earnings information, I compare the market reactions to cross-listed foreign firms (CLFFs) and to domestic firms. Using firm-year observations traded in the US stock market for the years 2002-2018, and taking earnings response coefficient as a proxy for market reaction, I discover that when assessing earnings news, US investors show bias against CLFFs relative to US domestic firms. This finding reveals that US investors respond differently to the quantitative earnings information of foreign firms. Moreover, although all firms listed in the US stock market are required to report regulatory filings written in the same language and held to the same disclosure standards, I find that the market reaction is negatively associated with the linguistic distance between English and the local language of the country where a CLFF is located. In additional analysis, I fail to find any significant difference in market reaction to earnings news for US firms when compared with CLFFs located in countries where English is the primary language. Thus, my study identifies linguistic distance as a key channel through which investors perceive the credibility of the accounting information reported by foreign firms, even after controlling for other country-level control variables including economic factors, legal regime, and culture.

Keywords: Linguistic distance; market reaction; capital market consequences; corporate disclosure; investor bias

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I. INTRODUCTION

Cross-listing is a very important decision for raising capital from foreign investors. Prior studies on cross-listing mostly focus on its positive effects. For example, cross-listed firms in foreign countries are benefited in two different ways: by increased investor recognition (Merton 1987) and by better investor protection (Coffee 1999; Stulz 1999). As a result of these increased benefits, cross-listed firms enjoy a stock price premium compared to non-cross-listed firms in their home countries (Foerster and Karolyi 1999; King and Segal 2009). Relatedly, Bartholomew and Hunsaker (2019) argue that US cross-listing improves the credibility of the foreign firms, with cross-listing seen as implying that a foreign firm is established, respected, and successful, and thus potentially given special treatment by investors.

There has not been much research, however, on how investors respond to cross-listed foreign firms (henceforth CLFFs) in comparison to their domestic firms. Focusing on the CLFFs in the US capital market, this study investigates how US investors respond to the earnings announcements of CLFFs. Specifically, this study investigates the following two questions: Do US investors discount the earnings information of CLFFs, compared with that of US domestic firms? And is the magnitude of the differential market reaction, if any, associated with the linguistic distance between the US and the local language of the countries where the CLFFs are located?

International business studies report that these differences potentially influence various individual and firm behaviors (e.g., Brannen, Piekkari, and Tietze 2014; Tenzer, Terjesen, and Harzing 2017). Relatedly, in finance, a stream of research documents the way that investors underweight foreign stocks, while overweighting domestic stocks, in their investment portfolios (Baik, Kang, Kim, and Lee 2013; French and Poterba 1990; Kang and

Stulz 1997). This tendency is frequently called the "home bias." (Lundholm, Rahman, and Rogo 2018). The linguistic distance or language barrier between home countries and foreign countries is identified as one of the main reasons for this biased behavior of investors. For example, Lundholm et al. (2018) document that US institutional investors invest less in firms located in Quebec (where French is the primary language) relative to firms located in the rest of Canada (where English is predominant). Similarly, Allee, Anderson, and Crawley (2019) document that the degree of foreign institutional shareholdings in US firms is negatively associated with the linguistic distance between US and the foreign countries.

Linguistic distance measures how different one language is from another (Isphording and Otten 2013). Linguistic distance may have the effect of increasing information disadvantage and/or decreasing psychological familiarity (Allee et al. 2019; Lundholm et al. 2018). This impacts investors' willingness to invest in foreign firms and also the magnitude of their response to news about foreign firms. For example, Brochet, Naranjo, and Yu (2016) document that US investors have difficulty in understanding the content of conference calls held by foreign firms, even when English is the medium of communication for these calls. The main reason for this difficulty is the frequent use of complex and/or erroneous expressions during the conference by non-native English speakers of the foreign firms. As a result, Brochet et al. (2016) find that the magnitude of market reaction, as measured by return volatility and trading volume at the time when the conference call takes place, is negatively related to the use of the complex and erroneous expressions.

This study focuses on the foreign firms cross-listed in the US stock market. They are subject to US security laws and required to file the necessary documents, including Form 20-F and 8-K, in English. This contrasts with the conference calls, which are commonly hosted by non-native English speakers and rarely accompanied by real-time English translators (Brochet

et al. 2016), whereas any formal documents filed by CLFFs are likely to be screened multiple times by English translators and auditors. Therefore, these firms actually tend to file more readable financial reports than their US counterparts (Lundholm, Rogo, and Zhang 2014). Notwithstanding the readability, US investors may feel a psychological distance from foreign firms, especially when firms are headquartered in countries which use languages very different from English (Lundholm et al. 2018). As a result, they may discount the earnings information of the foreign firms, compared with that of the domestic firms. Such earnings information is quantitative rather than qualitative information, and the question of whether US investors discount the credibility of this quantitative information when it is released by foreign firms has not previously been explored.

To test this possibility, I examine whether the magnitude of the market's reaction to the earnings news, as measured by the earnings response coefficient (ERC henceforth), is different when such news concerns US domestic firms and CLFFs. If US investors suspect the credibility of earnings reported by foreign firms, the magnitude of ERC for the foreign firms is expected to be smaller. Further, I examine whether the magnitude of the ERC is related to the linguistic distance between US and the local language of the foreign firms. If the linguistic distance creates any psychological effect or information disadvantage, I expect that, among European firms, the magnitude of ERC is likely to be smaller for French, German, and Spanish firms (where the local language differs significantly from English) than that of Dutch, English, Irish, and Swedish firms (where the local language is either English or is more similar to English). Similarly, among Asian firms, I expect that the magnitude of ERC is smaller for Chinese, Japanese, and Korean firms (where their respective language is very different from English) than for Indian, Indonesian, and Singaporean firms (where English is commonly used or a local language more which is more similar to English).

For the empirical analysis to examine these predictions, I collect 35,383 firm-year observations traded in the US stock market between 2002 and 2018. Among the samples, about 10 percent of the firms are for foreign firms cross-listed in the US. They are from 43 different countries across the world. I measure the linguistic distance between English and other languages by following Chiswick and Miller (2005). My empirical findings can be summarized as follows. First, I document that US investors discount earnings news of CLFFs compared with US domestic firms, resulting in a smaller ERC for the CLFFs. Second, restricting the samples to CLFFs, I find that the ERC magnitude is negatively associated with the linguistic distance between English and the local language of the foreign countries where the CLFFs are located. For example, although Finland and Sweden have similar GDP per capita and geographical location, US investors underreact to the earnings announcements of Finnish firms (whose language is highly different from English) more than they do to those of Swedish firms (whose language is relatively more similar to English). Third, I fail to find any significant difference in ERC between US firms and CLFFs that are located in countries where English is the primary language. This finding suggests that linguistic distance, even after controlling for other country-level differences such as culture and legal regime, is likely the reason for the discounted market reaction to the earnings information of foreign firms. Fourth, these findings are robust in various sensitivity tests.

This study contributes to the literature in the following three ways. First, considering that the proportion of foreign firms traded in US markets has been increasing dramatically in recent years[1], there is a great demand for academics to investigate a variety of issues related

[1] For example, Bartholomew and Hunsaker (2019) report that among total US initial public offerings (IPOs), 24 percent were foreign firms' IPOs in 2017. Further, about 25 percent of the total proceeds raised in the year were the foreign firms' IPOs. These statistics reveal that cross-listing by foreign firms in the US market is a common and very important issue for US investors.

to cross-listing. However, prior studies focus on only a few issues, mostly on the beneficial effect of the cross-listing for the CLFFs. In contrast, this study augments the existing research on cross-listing by showing that language barriers are correlated with smaller market reactions to earnings in the US setting. Although Brochet et al. (2016) document a similar difference in market reaction to conference calls made by foreign firms, my study is different from theirs in that it focuses on market reaction to earnings information, which is quantitative information, whereas conference calls only supply qualitative information. There is not much evidence to believe that investor response to quantitative information, particularly earnings numbers, is more affected by linguistic distance than qualitative information is, but my findings do suggest that earnings information provided by foreign firms, especially firms from countries where the local language is very different from English, are discriminated against by US investors. Although there is little or nothing that policy-makers can about language distance, there may be other ways which the management of foreign firms could consider to resolve this detrimental effect, by improving communications with US investors to enhance their firms' credibility [2].

Second, my findings also enlarge our understanding of US investors' behavior toward foreign firms, which has largely been ignored in prior studies. I note that only the literature on home bias partially explores this issue. Based on the findings of this study, however, future studies should look at other cultural or psychological factors that may influence aspects of investor behavior. Third, my study contributes to a line of research on ERC (e.g., Ghosh and Moon 2005; Ghosh, Kallapur, and Moon 2009; Krishnan, Heibatollah, and Zhang 2005; Lim

[2] Relatedly, to increase the readability of the official filings is a way to improve the attractiveness of foreign firms (Lundholm et al. 2014). In addition, Lundholm et al. (2018) document that US investors are more likely to invest in firms located in Quebec, Canada, if the firms are with analysts or board members based in the US or a CEO with US experience. Additionally, they document that portion of English information released by the firms (retrieved via a Google search) is also positively associated with the US investors' investment in Quebec firms. These findings suggest that similar efforts to increase the communications with US investors may result in the less discount for the ERC of the foreign firms.

and Tan 2008). The prior studies on ERC do not look at the CLFFs separately, and thus implicitly treat them as equivalent to US firms. I anticipate that future studies will further explore other cultural or psychological factors which influence ERC.

The rest of the paper is organized as follows. Section II summarizes the prior literature and develops the research hypotheses. In Section III, I describe my data and empirical models. Then I present my main empirical results in Section IV, and the results of additional analysis in Section V. Section VI concludes.

II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Prior Literature

The Reason for Home Bias

"Home bias" is the well-known empirical finding that investors overinvest in domestic stocks and underinvest in foreign stocks relative to the optimal investment portfolio implied by the modern portfolio theory (e.g., French and Poterba 1990; Karolyi and Stulz 2003; Beugelsdijk and Frijns 2010). Obstfeld and Rogoff (2001) officially recognized home bias as one of the six major puzzles in international macroeconomics.

Prior literature identifies the language barrier or linguistic distance between home countries and foreign countries as one of the main reasons for home bias. For example, Karolyi and Stulz (2003) states that investors display "home bias" potentially due to informational deficiencies and psychological biases induced by differences in language and culture. Baik et al. (2013) express that investors face "liability of foreignness" when they invest in foreign firms, that prevent the investors from predicting future returns accurately. Relatedly, Lundholm et al. (2018) document that US institutional investors invest less in firms located in Quebec (where

French is mainly used) relative to firms located in the rest of Canada (where English is predominantly used). Likewise, Grinblatt and Keloharju (2001) finds out that, in Finland where both Finnish and Swedish are used, Finnish investors whose native language is Swedish are more likely to invest in stocks of companies that publish their annual reports in Swedish and that their CEOs speak Swedish, compared to Finnish investors whose native language is Finnish. Similarly, Allee et al. (2019) document that foreign investors invest less in U.S. stocks when they are from countries with greater linguistic distances and when U.S. financial reports are more difficult to read. Kim, Li, Luo and Wang (2020) states that the linguistic differences between countries exacerbate the difficulty faced by foreign investors to monitor local firms and thus managerial opportunism of the local firms increases. In sum, these prior studies suggest that language may influence investor behavior.

The Literature on Earnings Response Coefficient

To examine market reaction of earnings informativeness and thus earnings quality, most prior studies use ERC, which measures how much abnormal stock returns react to firms' unexpected earnings (Scott 2015). Holthausen and Verrecchia (1988) and Choi and Salamon (1989) provide analytical framework that reduction in ERC means decrease in perceived quality of the accounting information system and decrease in informativeness of the accounting earnings signal. In other words, ERC is the capital market's perception about the uncertainty of a firm's accounting earnings (i.e., earnings quality) and thus the market valuation of the firm's earnings surprises (Francis and Ke 2006; Louis 2005). Therefore, it is expected that the magnitude of ERC is positively associated with the perceived credibility of the reported earnings numbers. The more credible for the reported earnings, the larger the magnitude of the market reaction to the earnings information.

Expanding these predictions, various prior studies look into the determinants of the magnitude of the ERC. For example, studies document that the magnitude of ERC is associated with firm age because older firms are more likely to be stable with less information asymmetry problems (Ghosh and Moon 2005); whether the auditor is a large accounting firm because large auditors are generally associated with higher audit quality (Teo and Wong 1993); book value to market value, persistence of earnings, volatility, and beta since they are motivated by valuation considerations (Warfield, Wild, and Wild 1995); size of the firm due to political theory; leverage because firms with high leverage are more likely to exploit the latitude in accounting to avoid possible debt-covenant violations (DeFond and Jiambalvo 1994); and regulation environment because it affects earnings quality (Warfield et al. 1995). I include those determinants as control variables in the regression models.

2.2 Foreign Firms and Investor Reaction

There are two competing views on the magnitude of investor reaction to earnings of foreign firms. I summarize the two views below. One line of research suggests that ERC of CLFFs should be greater than that of US domestic firms. Lang and Stice-Lawrence (2015) and Lundholm et al. (2014) investigate the disclosure quality of foreign firms. The former study reports that the regulation and incentives are related to the disclosure quality. The latter study documents that the foreign firms use clearer text and present more numerical data than their US counterparts in their annual filings, suggesting that foreign firms submit more readable or less opaque reports than US counterparts. The purpose of this increased readability of the foreign firms is to increase their bonding to US investors.[3] Specifically, Lundholm et al. (2014)

[3] Another possible way to increase the bonding is to increase the financial reporting quality. Consistent with this prediction, Lang, Raddy, and Yetman (2003) and Huijgen and Lubberink (2005) document that foreign cross-

document that firms from countries that do not use English are more likely to do so, suggesting that these firms have stronger incentives to attract the interest of US investors. Given that the linguistic opacity in annual reports or conference calls accompany smaller investor reaction (Bushee, Gow, and Taylor 2014; Brochet et al. 2016), the finding of Lundholm et al. (2014) may suggest that US investors may respond to the report of CLFFs even more strongly than that of US firms. In addition, as Bartholomew and Hunsaker (2019) argued, if US investors regard the CLFFs as the established, respected, and successful firms, US investors may trust the information released by the firms and respond more strongly to the information than they do to information released by US firms.

In contrast, the other line of research suggests that ERC of CLFFs should be smaller than that of US domestic firms. As suggested by literature on home bias, investors are less likely to invest in firms located in the foreign countries. One of the reasons for the investor bias is language barrier that investors face when they invest in foreign countries (Allee et al. 2019; Lundholm et al. 2018). Lundholm et al. (2018) point out two potential roles of the language barrier. First, the differential language may cause a fear of being less informed for foreign investors than domestic investors (e.g., Baik et al. 2013; Kim et al. 2020).[4] Second, the distance may decrease psychological familiarity to foreign firms. Relatedly, Brochet et al. (2016) document that US investors have difficulty in understanding the content of conference calls held by foreign firms. Thus, the magnitude of market reaction, measured by return volatility and trading volume at the time of conference calls, is negatively related to the use of the

listed firms in the US have better financial reporting quality than their comparable non-cross-listed firms located in their home countries.

[4] Relatedly, Selmier and Oh (2012, 2013) argue that sharing a common language increases communication frequency and knowledge sharing in multinational corporations, resulting in a better firm performance.

complex and erroneous expressions in the calls. These findings suggest that there is a potential that US investors may respond to the report of CLFFs less strongly than that of US firms.

Because of the two conflicting predictions, it is an interesting empirical question to see how the market behaves toward the earnings of CLFFs. Therefore, I propose the first hypothesis in a null form as follows:

H1: The magnitude of US investor reaction to earnings news is not different between US firms and foreign firms cross-listed in the US market.

2.3 Differential Market Reaction Depending on the Linguistic Distance

The first research hypothesis is related to the difference between US firms and CLFFs. Thus, I implicitly assume that US investors treat all CLFFs equally regardless of their origins. As a next research topic, I look into whether the linguistic distance between US and foreign countries influences the magnitude of investor reaction to CLFFs. Relatedly, Allee et al. (2019) document that the foreign ownership of US stocks is related to the linguistic distance between the US and the foreign countries. The larger the distance the smaller the foreign ownership, suggesting that linguistic distance plays a role in reducing the foreign investors' interest in investing US stocks. Relatedly, as explained above, two alternative predictions are possible. First, to attract US investors, CLFFs from countries with greater linguistic distance have stronger incentives to bond themselves to US investors than those from countries with less linguistic distance. As a result, the former are likely to issue more readable annual reports and earnings release (Lundholm et al. 2014), resulting in greater ERC. Second, as Allee et al. (2019) and Lundholm et al. (2018) suggest, US investors may feel more information asymmetry and/or psychological distance from CLFFs from countries with greater linguistic distance than those from countries with less distance. Then, US investors are more likely to discount the earnings

reported by the former than the later. In this case, the ERC of the former would be smaller than that of the later.

Based on the two conflicting predictions, I propose the second hypothesis in a null form as well as follows:

H2: The magnitude of US investor reaction to earnings news for foreign firms cross-listed in the US market is not proportional to linguistic distance between English and the domestic language.

III. DATA AND EMPIRICAL MODEL

3.1. Measures of Linguistic Distance

I construct a sample at the firm-year level and include all US domestic firms and foreign firms listed in the US during 2002-2018. My study focuses on the US stock market and US investors because they are the most useful setting for my analysis for following reasons: first, the US capital market is the largest and most competitive market in the world with a strong information environment (Bradshaw, Bushee, and Miller 2004). For example, form 20-F, section E(c)(3) states that financial statements filed with the 20-F "must be audited in accordance with U.S. generally accepted auditing standards, and the auditor must comply with the U.S. standards for auditor independence". Also, the Sarbanes-Oxley Act of 2002 created the PCAOB and assigned it responsibility to regulate all auditors of US- listed companies, indicating that all the firms listed in the US stock market face the same audit and reporting standards. Therefore, firms listed in the US stock market are subject to the same stringent regulatory requirements, ruling out the possibility that other factors may influence firm behaviors. Moreover, English is the dominant lingua franca ("language of business") around

the world (Neely 2012). Since all firms listed in the US stock market communicate with US investors with English, there is little chance that language is really matter for investor decision-making. In sum, by focusing on the US stock market, I can rule out many hidden factors that influence any international research.

I define firms as foreign firms if they are headquartered outside the US. I identify all firm-year observations by country where the firm is headquartered in Table 1. To test H2, which predicts the differential market responses depending on linguistic differences, I limit the sample to those firm-year observations with available measures of linguistic difference. The sample for the foreign firm-year observations consists of 3,485 firm-year observations from 43 countries. Of total foreign firm-year observations, Canada and China, Mainland have the largest number (percentage) of observations, each consisting of 645 (16.42%) and 554 (14.1%) observations. On the other hand, Australia, Austria, Columbia, Denmark, Hungary, Iceland, New Zealand, Panama, Peru, Portugal, Turkey, United Arab Emirates, and Uruguay show less than ten observations for total sample periods. Due to the concern that firms located in a few dominant countries with large sample size may drive the results of ordinary least square analysis (OLS), I additionally plan to perform weighted least squares (WLS) regression by allocating equal weight to each country.[5]

I use two proxies for linguistic distance to measure how different one language is from English. First and my primary proxy measures how difficult it was for a sample of English-speaking U.S. State Department employees to learn those languages (Chiswick and Miller 2005). The US Department of State's School of Language Studies administers language training protocols and standardized tests to native English-speaking US government employees

[5] In contrast, OLS give equal weight to each observation. Thus, considering the large discrepancy in the country-level sample size reported in Table 1, it is possible that a few countries with a large number of observations (e.g., Canada and China) may determine the empirical result. The WLS regression approach resolves such a concern.

(e.g. diplomats) and then assess the employee's reading and speaking proficiency. Allee et al. (2019) state that this method not only does not require the assumption about functional form of language trees, the validity of theories about prehistoric migration patterns, or the appropriate way to measure differences in pronunciation, but also is only proxy measuring how difficult it was for humans to process and respond to communication in another language.[6] I use Chiswick and Miller's (2005) proxy[7] but I adjust the scale of linguistic distance measurement, *Ldiff_1*, from 0.00 to 3.00 by subtracting each value from 4 so that the resulting measure of linguistic distance for the country with 3.00 representing a higher linguistic distance from English. For example, Japanese and Korean have the highest score 3.00 which means US investors perceive them as the most exotic or difficult language while language of some countries, such as Australia, Ireland, New Zealand, and the United Kingdom, has the lowest score 0.00 where the primary language is English as the US. Moreover, although Sweden and Finland are geographically located in the similar region, the former scores 1.00 whereas the latter scores 2.00 which indicates that US investors perceive Swedish as more familiar than Finnish. My second proxy, *Ldiff_2*, is classified into 0, 1, 2 based on Ldiff_1 using tercile cut off, with higher values denoting greater linguistic distance. The detailed country-by-country statistics on *Ldiff_1* and *Ldiff_2* are reported in Table 1.

[Insert Table 1 about here]

[6] However, I use an alternative measure of linguistic distance using the phonetic approach as a robustness check (see Section 5.2).
[7] The scores are available from Table 1 in Chiswick and Miller (2005).

3.2. Empirical Model

Differential Investor Reaction to Foreign Firms

To test H1, I slightly modify Ghosh and Moon's (2005) model to estimate ERCs as follows:

$$\begin{aligned} CAR = \ & \beta_0 + \beta_1 E + \beta_2 \Delta E + \beta_3 (E \times Foreign) + \beta_4 (\Delta E \times Foreign) + \beta_5 Foreign \\ & + \beta_6 (E \times X) + \beta_7 (\Delta E \times X) + \beta_8 X + Industry\ FE \\ & + Year\ FE + \varepsilon \end{aligned} \quad (1)$$

where, the dependent variable *CAR* is defined as 12-month (ending three months after the fiscal year-end) cumulative market-adjusted returns. *E* and $\triangle E$ are net income and changes in net income, respectively. *Foreign* is an indicator variable set equal to one if the firm is foreign firms cross-listed in the US and their headquarters are outside the US, zero otherwise. I include both earnings level and earnings changes in the model to increase the explanatory power and magnitude of ERCs when earnings contain both transitory and permanent components (Ali and Zarowin 1992; Easton and Harris 1991). X is a control variable vector and each of the control variables is interacted with *E* and $\triangle E$ and also included as a separate independent variable.

The ERC is our proxy for investors' reaction to earnings or earnings informativeness. ERC is measured by sum of the coefficients of earnings level and changes ($\beta_1 + \beta_2$). To examine whether the US investors differently react to earnings news of CLFFs, I interact *E* and $\triangle E$ with the indicator variable *Foreign*. The sum of coefficients on *E*Foreign* and $\triangle E$**Foreign* ($\beta_3 + \beta_4$) indicates the incremental reaction of the US investors to CLFFs. If the US investors differently perceive earnings quality of CLFFs from that of the US domestic firms, $\beta_3 + \beta_4$ is expected to differ from zero.

I include various firm-level control variables into Equation (1) following prior literature on ERC (e.g., Collins and Kothari 1989; Dhaliwal and Reynolds 1994; Ghosh and Moon 2005;

Warfield et al. 1995). *FirmAge* is computed using the beginning and end dates as reported measures the number of years that the firm has been publicly traded as of the fiscal year; *Big4* is an indicator variable that equals 1 when the firm's auditor belongs to big 4 accounting firm; *Growth* is the sum of the market value of equity and the book value of debt scaled by the book value of total assets; *Persistence* is the first-order autocorrelation of income before extraordinary items per share for the past 16 quarters; *Volatility* is the standard deviation of income before extraordinary items per share for the past 16 quarters; *Beta* is systematic risk computed using the past 60 monthly stock returns; *Size* is the logarithmic transformation of the fiscal year-end market value of equity of the prior year; *Leverage* is the ratio of total debt to total assets ; and *Regulation* is an indicator variable that equals 1 for firms in a regulated industry with two-digit standard industry classification codes between 40 and 49 or between 60 and 63.

To control for country-level variations such as country size, wealth, economic growth, and other factors that may influence market response (Lamoreux 2016), I also include country-level control variables used in prior research. I include the logarithmic transformation of a country's gross domestic product (*GDP*), the logarithmic transformation of a country's gross domestic product per capita (*GDP Capita*), and the strength of the country-level legal regime (*Rule of Law*) which is defined by world bank as "a measure that captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence". Following Lamoreux (2016), I adjust the scale of *Rule of Law* to 0.0-1.0 with 1.0 representing a higher overall level of rule of law. The country-by-country mean values of the country-level control variables are reported in Table 1.

In Equation (1), I also include controls for year and industry fixed effects, and cluster standard errors by firms. I do not include country fixed effects because one of the primary variables of interest, the linguistic distance, and multiple control variables are all time-invariant for a given country (Allee et al. 2019).

Differential Investor Reaction Depending on Linguistic Distance

To test H2, I slightly modify Ghosh and Moon's (2005) model to estimate ERCs as follows:

$$CAR = \beta_0 + \beta_1 E + \beta_2 \Delta E + \beta_3 (E \times Ldiff) + \beta_4 (\Delta E \times Ldiff) + \beta_5 Ldiff + \beta_6 (E \times X) + \beta_7 (\Delta E \times X) + \beta_8 X + Industry\ FE + Year\ FE + \varepsilon \quad (2)$$

My analysis of whether linguistic distance influences market responses to earnings information is based on the estimates from Equation (2) using *Ldiff* as the main dependent variable. *Ldiff* is either *Ldiff_1* or *Ldiff_2*. Both proxies are based on Chiswick and Miller (2005) as previously discussed. Specifically, *Ldiff_1* is a continuous measure of the linguistic distance between English and other languages spoken in 43 other countries, scales between 0.00 ~ 3.00. In contrast, *Ldiff_2* is classified into 0, 1, 2 based on Ldiff_1 using tercile cut off. Control variables are the same as in the Equation (1) and I also include controls for year and industry fixed effects, and cluster standard errors by firms.

The sum of coefficients on *E*Ldiff* and *⊿E*Ldiff* ($\beta_3 + \beta_4$) indicates the incremental reaction of the US investors to earnings of firms from the countries with greater linguistic distances. If the US investors differently perceive earnings quality depending on linguistic distances, $\beta_3 + \beta_4$ is expected to differ from zero.

3.2. Sample Selection

My sample period spans between 2002 - 2018. The analysis begins in 2002 because the Sarbanes-Oxley Act of 2002 created the PCAOB and assigned it responsibility to regulate all auditors of US-listed companies including all foreign and domestic auditors of SEC registrants starting from 2002 (Lamoreux 2016), resulting the foreign firms and US domestic firms under the same audit and reporting standard.

The primary data sources I use are Compustat, CRSP, and World Bank. I exclude firm-year observations with the absolute value of cumulative market-adjusted returns greater than 100 percent, with less than $1 million in total assets, and drop observations that are missing necessary control variables. All of my tests are reported based on continuous control variables winsorized at 1 percent for each tail to reduce the influence of outliers.

3.3. Descriptive Statistics

I present the separate descriptive statistics for US domestic firms and foreign firms: Table2, Panel A for firm-year observations from US domestic firms, consisting of 31,898 samples, while Table2, Panel B for CLFFs, consisting of 3,485 samples.

At firm-level control variables, *Firmage* and *Growth* is greater for US domestic samples than for CLFFs samples: mean *Firmage* for the US domestic samples is 19.96, while mean for CLFFs samples 12.6; Mean *Growth* for the US domestic samples is 1.76, whereas that for the CLFFs samples is 1.60; On the other hand, *E, Big4, Volatility, Beta, Size, Regulation* is greater for the CLFFs samples than for the US domestic samples: Mean *E* for the US dometic samples is -0.004, while that for the CLFFs samples is 0.008; Mean *Big4* for the US domestic samples

is 0.73, while that for the CLFFs samples is 0.86; Mean *Volatility* for the US dometic samples is 0.35, while that for the CLFFs samples is 0.41; Mean *Beta* for the US dometic samples is 1.03, while that for the CLFFs samples is 1.28; Mean *Size* for the US dometic samples is 6.31, while that for the CLFFs samples is 7.29; Mean *Regulation* for the US dometic samples is 0.22, while that for the CLFFs samples is 0.26. All the country-level control variables are greater for US domestic samples than for CLFFs samples: Mean *Rule of Law* for the US domestic samples (CLFFs samples) is 0.82 (0.69), *GDP* 30.33 (27.71), and *GDP Capita* 10.79 (10.02). However, to address the concern that those different characteristics between US domestic samples and CLFFs samples may drive my empirical results, I perform propensity score matching analysis as robustness check (see Section 6.7).

[Insert Table 2 about here]

Table 3 reports the Pearson correlation matrix between variables used in the regression model. *CAR* is significantly and positively correlated with E and ΔE, consistent with prior studies (e.i. Ghosh and Moon 2005). *CAR* has significantly negative correlations with Foreign, suggesting preliminary evidence that CLFFs tend to have lower abnormal returns than US domestic firms. Furthermore, *CAR* has significantly negative correlations with both measures of linguistic distances, implying preliminary evidence that firms located in countries with higher linguistic distances from English have lower abnormal returns. High negative correlation between linguistic distance measurements (*Ldiff_1* and *Ldiff_2*) and country-level variables (*Rule of law, GDP, and GDP capita*) suggests that countries with greater linguistic distances are correlated to the weaker legal regime and lower GDP, and GDP capita. This also provides ground for controlling the country-level variables.

[Insert Table 3 about here]

IV. EMPIRICAL RESULTS

4.1. Tests of H1: Differential Investor Reaction to Foreign Firms

Table 4 presents the results for the test of H1, which investigates whether the magnitude of US investor reaction to earnings news is different between US firms and CLFFs. Note that the explanatory power (i.e., adjusted R^2) reported at each column is very high (ranging from 0.16 to 0.17 in OLS and from 0.35 to 0.39 in WLS), suggesting that my model reasonably captures the variation in the cumulative abnormal returns.

In Column (1), I report the result of OLS analysis by using Equation (1) only with *E*, ΔE and control variables other than *Foreign*-related variables. The ERC, the sum of coefficients of *E* and ΔE ($\beta_1 + \beta_2$), is 0.655 and statistically positive (F=1239.54). This finding is consistent with prior studies that earnings are significant determinant of stock price (Easton and Harris 1991; Ghosh and Moon 2005). When I include *Foreign* and interact it with *E* and ΔE separately in Column (3), I find that the sum of coefficients of the two interaction terms ($\beta_3 + \beta_4$) is -0.154 and statistically significant (F=8.83). This result suggests that US investors perceive earnings of CLFFs as having low quality compared to those of US domestic firms. For example, suppose that there are a Korean firm and a US domestic firm listed in the US stock market. Although those two firms have identical firm characteristics except for nationality, US investors underreact to earnings announcements of the Korean firm compared to the US domestic firm. Furthermore, I find consistent results when I estimate the full model of equation (1) with all control variables interacting with *E* and ΔE (Column (5)). Specifically, the sum of coefficients of the two interaction terms ($\beta_3 + \beta_4$) is -0.300 and statistically significant (F=18.84). For brevity, I report the sum of the coefficients on the interactions

between each control variable and E or ΔE, rather than presenting the individual coefficients in Table 4 (and all subsequent tables).

To address the concern that firms located in a few dominant countries may drive the results, I perform WLS regression and report the results in Column (2), (4), and (6). Column (2) [(4) and (6)] are comparable to OLS results reported in Column (1) [(3) and (5)]. In all analyses, I find consistent results as those using OLS. Overall, my results suggest that US investors perceive the "foreignness" as discounting earnings informativeness, and tend to less rely on such accounting information, thus rejecting the null hypothesis.

[Insert Table 4 about here]

4.2. Tests of H2: Differential Investor Reaction Depending on Linguistic Distance

Table 5 presents the results for the test of H2, which investigates whether the magnitude of US investor reaction to earnings news for foreign firms cross-listed in the US market is proportional to linguistic distance between English and the domestic language. The variable of interest is interaction of linguistic distance (*Ldiff_1* or *Ldiff_2*) with E and ΔE.[8]

When I regress the Equation (2) with *Ldiff_1* as a proxy for linguistic distance, excluding interactions of control variables with E and ΔE, I find that the sum of coefficients of the two interaction terms ($\beta_3 + \beta_4$) is -0.090 and statistically significant (F=7.32) as reported in Column (1) of Table 5. This finding suggests that US investors perceive earnings of firms with greater linguistic distance as having low quality compared to those of firms located in the

[8] Because the results of WLS are qualitatively similar to those of OLS, in Table 5 and all subsequent tables, I report the results of OLS only for the simplicity.

countries where the primary language is English. For example, although Finland and Sweden have similar GDP per capita and geographical location, US investors underreact to earnings announcements of Finnish firms whose language is more different from English than that of Swedish firms whose language is relatively similar to English. I find consistent results when I estimate the full model of Equation (2) with all control variables interacting with E and ΔE (Column (2)). Specifically, the sum of coefficients of the two interaction terms ($\beta_3 + \beta_4$) is -0.198 and statistically significant (F=15.68).[9] In Column (3) and (4), I use *Ldiff_2* as measurement of linguistic distance and show the consistent result, showing that sum of coefficients of the two interaction terms ($\beta_3 + \beta_4$) is significantly negative at the 1% level.

Overall, my results suggest that US investors perceive the linguistic distance as deteriorating earnings quality, and tend to less rely on such accounting information, thus rejecting the null hypothesis.

[Insert Table 5 about here]

I restrict the sample to 3,468 observations of CLFFs, which exclude US domestic firms and repeat the regression model of Equation (2). Thus, I examine the influence of linguistic difference among foreign firms only. Table 6 presents the results of OLS analysis with those restricted samples.

In Column (1), I estimate Equation (2) only with E, ΔE and control variables other than linguistic distance related variables. The ERC, the sum of coefficients of E and ΔE ($\beta_1 + \beta_2$), is 0.493 and statistically positive (F=114.42), consistent with prior studies (Ghosh and

[9] To conserve space, I do not report the coefficients for the control variables and their interaction with, E and ΔE. I do not observe any strange results for them.

Moon 2005; Easton and Harris 1991). Consistent with my prior results in Table 5, when I include *Ldiff_1* [*Ldiff_2*] and interact with E and ΔE separately in Column (2) [Column (4)], I find that the sum of coefficients of the two interaction terms ($\beta_3 + \beta_4$) is -0.075 (-0.085) and statistically significant with F=2.78 (F=2.78), suggesting that US investors tend to discount earnings information of firms with greater linguistic distance compared to those of firms located in other countries (except US) where the main language is English. The results are also consistent when I include interactions of control variables with E and ΔE [Columns (3) and (5)].

[Insert Table 6 about here]

To further examine whether linguistic distance is the one of the main channels through which investors discount earnings quality of foreign firms, I restrict the sample to English-speaking countries and repeat the regression model of Equation (1). The restricted sample includes the firms located in the US, Ireland, New Zealand, the United Kingdom, and the US, where their primary language is English. I predict that, if linguistic distance is the main reason for the earnings discount, there will be no significant difference in ERC among US firms and CLFFs from English-speaking countries.

Table 7 presents the empirical results of the analysis. As predicted, I fail to find the significant difference in ERC between US firms and CLFFs that are located in the countries where English is used as a primary language. With (without) interactions of control variables with E and ΔE, Column (3) (Column (2)) shows that the sum of coefficients of the two interaction terms ($\beta_3 + \beta_4$) is -1.963 (-1.264) and statistically insignificant with F=2.02 (F=0.84), while the ERC, the sum of coefficients of E and ΔE ($\beta_1 + \beta_2$), is statistically positive at 1% level. For example, the US investors do not differentiate the earnings news of Irish firms

and US domestic firms if they share similar firm characteristics. The finding suggests that linguistic distance is likely the reason for the discounted market reaction to the earnings information of foreign firms.

[Insert Table 7 about here]

V. ADDITIONAL ANALYSES

5.1. Robustness Tests

I perform several additional analyses tests for the robustness of my findings. First, to address the concern that cultural difference influences market responses and cancel out the effect of linguistic distance, I include six measures of cultural difference based on Hofstede (2001)[10] as additional control variables for each country and then repeat the analysis.[11] Estimated results are presented in Table 8, Column (1). I confirm that greater linguistic distance is associated with lower market reaction, even after controlling for cultural differences.[12]

Second, I alternatively use Dow and Karunaratna's (2006)[13] proxy the linguistic distance. Dow and Karunaratna (2006) measures are based on phonetic similarity approach: classification system that groups languages by families (i.e., Afro-Asiatic, Creole, Indo-

[10] The six measures of culture include power distance (*PDI*), individualism versus collectivism (*IDV*), masculinity versus femininity (*MAS*), uncertainty avoidance (*UAI*), long-term versus short-term orientation (*LTO*), and indulgence versus restraint (*IVR*). The scores are available from https://www.hofstede-insights.com/product/compare-countries/.

[11] In my main analyses, I do not include measures of cultural differences between each country because Ghadhab and Hellara (2016) demonstrates that cultural proximity does not explain valuation gain or positive market reaction of foreign firms. One the other hand, some prior studies identify cultural differences as the main attributor of home bias (i.e., Kim et al. 2018).

[12] Among cultural difference measures, I find that only the power distance (PDI) significantly influences the magnitude of ERC at 5% or higher level. The result implies that as the power distance increases, ERC decreases. The greater value of the power distance implies the unequal distribution of the power within the country.

[13] The scores are available from https://sites.google.com/site/ddowresearch/.

European), with up to three levels of branches and sub-branches within each family. For example, English is classified under the Indo-European family, within the Germanic branch and the Western sub-branch. As presented in Table 8, Column (2), our results are not sensitive to the alternative measures of linguistic distances.

Third, I exclude samples of Canada; China, mainland; and the US. Canada and China, Mainland are the countries with the first and second largest number of firm-year observations, accounting for approximately 30 % of total CLFFs samples and reducing the total sample size to 2,268. I also restrict the sample into firm-year observations whose *Firmage* is greater than 3. This restriction is intended to perform empirical analysis with firms with relatively more established and stable firms. The former results are presented in Table 8, Column (3), and the latter in Table 8, Column (4). These results confirm that my prior findings are not driven by a few outliers.

Fourth, I include an additional control variable of earnings quality (*ABS_DA*), an absolute value of performance matched discretionary accruals suggested by Kothari et al. (2005). Prior studies discover that CLFFs in the US have better financial reporting quality than comparable US domestic firms (Huijgen and Lubberink 2005; Lang et al. 2003) because US regulators (i.e., PCAOB) have concerns on the poor audit quality of foreign auditors who audit the cross-listed firms in the US (Calderon and Song 2014). To mitigate the potential problem that difference in earnings quality between CLFFs and US domestic firms dominates the effect of linguistic distance on the market reaction, I control for earnings quality as presented in Table 8, Column (5). The result shows that earnings quality is negatively correlated with reaction of US investors at 1% significance level, but linguistic distance is still negatively associated with

lower market reaction at 1% significance level after controlling for the earnings quality, consistent with my prior findings.[14]

[Insert Table 8 about here]

5.2. Tests with Propensity Score Matched Sample

Regarding H1, while I find that US investors discount earnings news of CLFFs compared with US domestic firms, it is possible that firm characteristics between treatment samples (i.e., CLFFs) and control samples (i.e., US domestic firms) drive these results. As I present the differences in independent variables of two samples in Table 2 (see Section 3.3), these differences may lead to selection bias in assessing the results of the treatment effect. To mitigate this concern, I perform a matched-sample analysis based on propensity score matching (PSM) following Lawrence, Minutti-Meza, and Zhang (2011). First, I run a probit model using firm-level characteristics variables used in the main regressions. Then, I match each treatment sample with a control firm that has the closest propensity score, without replacement within a maximum caliper distance of 0.05.[15] As a result, I successfully match 6,724 treatment samples with the control samples.

Table 9, Panel A presents a comparison of firm characteristics between the treatment and control samples before and after PSM. Before the matching, the mean difference shows that two samples are different in many dimensions. After PSM, none of these firm characteristics are significantly different between the two samples, indicating that the matching is effective. Table 9, Panel B presents the result of H1 using the matched samples. To conserve

[14] Note that the sample size decreases to 29,838 observations as reported in the Column (5), due to the data requirements to estimate discretionary accruals.
[15] The empirical analysis using alternative cut-off values (0.1 or 0.075), instead of 0.05, yield qualitatively similar results.

space, I only report the coefficients for the variables of interest, *E*, $\triangle E$ and *E*Foregin*, $\triangle E$**Foreign*. The results are largely consistent with my prior findings. Panel B shows that the sum of coefficients on *E*Foregin* and $\triangle E$**Foreign* is negative and significant. Overall, the results suggest that US investors discriminate against earnings news of CLFFs compared to US domestic firms is unlikely to be attributable to the difference in clients' firm characteristics.

[Insert Table 9 about here]

VI. CONCLUSION

I explore whether investors discriminate the earnings information of cross-listed foreign firms (CLFFs) compared with that of domestic firms, after they make investment decisions. This is an important question because there is conflict between the literature on home bias and other literature. The latter discovers that CLFFs tend to file more readable financial reports than domestic firms. Empirical findings are as follows. First, I document that US investors discount earnings news of CLFFs compared with US domestic firms, resulting in the smaller earnings response coefficient for the CLFFs. Second, restricting the samples into CLFFs, I find that the magnitude of ERC is proportional to the linguistic distance between English and the foreign countries where the CLFFs are located. Third, I fail to find the significant difference in ERC between US firms and CLFFs that are located in the countries where English is used as a primary language. Controlling for other country-level differences such as culture and legal regime, overall, my study identifies the channel through which investors suspect the credibility of accounting information reported by foreign firms: linguistic distance, which may induce a psychological effect or information disadvantage. Fourth, these findings are robust in various sensitivity tests.

This study contributes to the literature in various ways. First, my study provides new insights into the research on cross-listing literature by suggesting that earnings information of foreign firms, especially firms from countries where the language is very different from English, are discriminated against by US investors. My findings provide implications to management of foreign firms of some other ways to improve the communications with US investors to enhance the credibility of the firms. Second, my findings also enlarge our understanding of US investors' behavior toward foreign firms, which has largely been ignored in prior studies. Based on the findings of this study, future studies should look at other cultural or psychological factors that may influence aspects of investor behavior. Lastly, my study contributes to a line of research on ERC (e.g., Ghosh and Moon 2005; Ghosh et al. 2009; Krishnan et al. 2005; Lim and Tan 2008). The prior studies on ERC do not look at the CLFFs separately and thus implicitly treat them as equally as US firms. My results, however, are also subject to a caveat. Restricting the samples to firms listed in the US capital market may arise generalization problem.

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Appendix A. Variable Definitions

Variables	Definition
CAR	12-month (ending three months after the fiscal year-end) cumulative market-adjusted returns. Market-adjusted returns are the difference between raw returns and value-weighted CRSP market return.
E	Income before extraordinary items deflated by market value of equity at the beginning of the year.
ΔE	The difference between income before extraordinary items for the current year and that of last year, deflated by market value of equity at the beginning of the year.
Foreign	Indicator variable set equal to one if the firm is listed in the US capital market and its headquarter is outside the US, zero otherwise.
Firmage	The difference between the beginning and end dates as reported measures the number of years that the firm has been publicly traded as of the fiscal year.
Big4	Indicator variable that equals 1 when the client's auditor is a large accounting firm.
Growth	The sum of the market value of equity and the book value of debt scaled by the book value of total assets.
Persistence	The first-order autocorrelation of income before extraordinary items per share for the past 16 quarters.
Volatility	The standard deviation of income before extraordinary items per share for the past 16 quarters.
Beta	Systematic risk computed using the past 60 monthly stock returns.
Size	The logarithmic transformation of the fiscal year-end market value of equity of the prior year
Leverage	The ratio of total debt to total assets.
Regulation	Indicator variable that equals 1 for firms in a regulated industry with two-digit standard industry classification codes between 40 and 49 (transportation and public utilities) or between 60 and 63 (finance and insurance)
Rule of Law	Rule of law measure from the Worldwide Governance Indicators created by the World Bank (Kaufmann et al., 2010). Rule of law measures "the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence." I measure Rule of Law on a scale of 0.0–1.0, with 1.0 representing a higher overall level of rule of law.
GDP	The logarithmic transformation of gross domestic product. Obtained from the World Bank website (http://data.worldbank.org/indicator).
GDP Capita	The logarithmic transformation of gross domestic product scaled by population of the auditor country. Obtained from the World Bank website (http://data.worldbank.org/indicator).
Ldiff_1	Use scores from Table1, Chiswick and Miller (2005). I adjust the scale of linguistic distance measurement from 0.00 to 3.00 by subtracting each value from 4 with higher scores representing higher linguistic distance from English.
Ldiff_2	Classified into 0, 1, 2 tercile cut off based on Ldiff_1.
pdi	Power distance index. Higher values denote a greater deference to people in power. Obtained from the six dimensions of Hofstede (2001) https://geerthofstede.com/research-and-vsm/dimension-data-matrix/.
idv	Individual versus collectivism. Higher (lower) values denote that the individual (group) is the most important social unit. Obtained from the six dimensions of Hofstede (2001) https://geerthofstede.com/research-and-vsm/dimension-data-matrix/.
mas	Masculinity versus femininity. Higher values denote emphasis on ambition, wealth acquisition, and differentiated gender roles whereas lower values denote emphasis on nurturing behaviors, sexual equality, environmental awareness, and more fluid gender roles. Obtained from the six dimensions of Hofstede (2001) https://geerthofstede.com/research-and-vsm/dimension-data-matrix/.
uai	Uncertainty avoidance index. Higher values denote a culture that feels more threatened by ambiguity. Obtained from the six dimensions of Hofstede (2001) https://geerthofstede.com/research-and-vsm/dimension-data-matrix/.
lto	Long term orientation versus short term normative orientation. Higher values denote a culture more prepared to delay short-term gratification. Obtained from the six dimensions of Hofstede (2001) https://geerthofstede.com/research-and-vsm/dimension-data-matrix/.
ivr	Indulgence versus restraint. Higher values denote a culture more prepared to allow relatively free gratification of natural human desires. Obtained from the six dimensions of Hofstede (2001) https://geerthofstede.com/research-and-vsm/dimension-data-matrix/.
ABS_DA	An absolute value of performance matched discretionary accruals (Kothari et al. 2005).

Table 1
Sample Composition by Country (2002-2018)

Country	N	Percentage (%)	*Ldiff*		*GDP*	*GDP Capita*	*Rule of Law*
			Ldiff_1	*Ldiff_2*	*Mean*	*Mean*	*Mean*
Argentina	72	1.83	1.75	1	26.563	9.036	0.377
Australia	5	0.13	0.00	0	27.623	10.714	0.856
Austria	2	0.05	1.75	1	26.636	10.691	0.873
Belgium	15	0.38	1.35	1	26.827	10.624	0.775
Brazil	96	2.44	1.50	1	28.024	8.935	0.458
Canada	645	16.42	0.33	0	27.982	10.640	0.856
Chile	92	2.34	1.75	1	25.933	9.280	0.758
China, Mainland	554	14.1	2.58	2	29.297	8.283	0.409
Colombia	7	0.18	1.75	1	26.156	8.533	0.413
Denmark	5	0.13	1.75	1	26.427	10.897	0.888
Finland	11	0.28	2.00	1	26.183	10.688	0.896
France	47	1.2	1.50	1	28.530	10.543	0.787
Germany	41	1.04	1.75	1	28.819	10.598	0.837
Greece	76	1.93	2.25	2	26.220	10.011	0.613
Hong Kong	98	2.49	2.75	2	26.191	10.423	0.821
Hungary	6	0.15	2.00	1	25.540	9.424	0.647
Iceland	3	0.08	1.25	1	23.518	10.852	0.853
India	70	1.78	1.13	1	28.377	7.394	0.492
Indonesia	17	0.43	2.00	1	27.533	6.662	0.515
Ireland	207	5.27	0.00	0	26.203	10.892	0.831
Israel	345	8.78	2.05	2	26.116	10.270	0.692
Italy	34	0.87	1.50	1	28.309	10.413	0.589
Japan	132	3.36	3.00	2	29.230	10.566	0.774
Korea, South	48	1.22	3.00	2	27.715	9.996	0.699
Luxembourg	39	0.99	1.63	1	24.627	11.478	0.864
Mexico	108	2.75	1.75	1	27.665	9.116	0.402
Netherlands	132	3.36	1.25	1	27.381	10.755	0.864
New Zealand	1	0.03	0.00	0	25.681	10.393	0.879
Norway	11	0.28	1.00	1	26.656	11.252	0.891
Panama	7	0.18	1.75	1	24.128	9.022	0.482
Peru	9	0.23	1.75	1	25.580	8.392	0.386
Philippines	11	0.28	2.00	1	25.930	7.574	0.410
Portugal	4	0.1	1.50	1	26.084	9.921	0.724
Russia	22	0.56	1.75	1	27.823	9.036	0.333
Singapore	41	1.04	1.25	1	26.072	10.661	0.836
South Africa	53	1.35	1.13	1	26.399	8.643	0.522
Spain	44	1.12	1.75	1	27.861	10.231	0.721
Sweden	28	0.71	1.00	1	26.872	10.814	0.887
Switzerland	100	2.55	1.66	1	27.020	11.145	0.874

Turkey	9	0.23	2.00	1	27.202	9.098	0.501
United Arab Emirates	3	0.08	1.25	1	26.317	10.563	0.609
United Kingdom	232	5.91	0.00	0	28.591	10.636	0.842
Uruguay	3	0.08	1.75	1	24.207	9.178	0.625
Total	3485	100					

Table 1 reports sample composition by country. For detailed definitions of variables, refers to Appendix A.

Table 2
Descriptive Statistics

Panel A. Observations from US Domestic Firms (2002-2018)

Variables	Mean	Min	25%	50%	75%	Max	N
CAR	-0.033	-0.738	-0.237	-0.041	0.158	0.784	31898
E	-0.004	-0.704	-0.017	0.042	0.070	0.224	31898
ΔE	0.005	-0.485	-0.022	0.004	0.026	0.598	31898
Foreign	0	0	0	0	0	0	31898
Firmage (years)	19.953	2.184	8.396	15.426	26.482	82.405	31898
Big4	0.730	0	0	1	1	1	31898
Growth	1.759	0.119	0.749	1.210	2.031	11.602	31898
Persistence	0.234	-0.455	-0.016	0.193	0.475	1.053	31898
Volatility	0.351	0.025	0.105	0.202	0.420	2.437	31898
Beta	1.030	-0.406	0.546	0.950	1.416	3.297	31898
Size	6.305	2.073	4.800	6.308	7.711	11.429	31898
Leverage	0.213	0.000	0.020	0.163	0.333	0.909	31898
Regulation	0.217	0	0	0	0	1	31898
Rule of Law	0.818	0.787	0.818	0.820	0.826	0.829	31898
GDP	30.330	30.023	30.257	30.320	30.451	30.654	31898
GDP Capita	10.789	10.546	10.743	10.787	10.880	11.048	31898

Panel B. Observations from Cross-Listed Foreign Firms (2002-2018)

Variables	Mean	Min	25%	50%	75%	Max	N
CAR	-0.061	-0.738	-0.286	-0.074	0.141	0.784	3485
E	0.008	-0.704	-0.012	0.044	0.083	0.224	3485
ΔE	-0.001	-0.485	-0.033	0.002	0.031	0.598	3485
Foreign	1	1	1	1	1	1	3485
Firmage (years)	12.604	2.184	5.575	10.249	16.242	82.405	3485
Big4	0.858	0	1	1	1	1	3485
Growth	1.595	0.119	0.658	1.063	1.867	11.602	3485
Persistence	0.218	-0.455	-0.026	0.178	0.450	1.053	3485
Volatility	0.413	0.025	0.113	0.235	0.502	2.437	3485
Beta	1.282	-0.406	0.799	1.202	1.703	3.297	3485
Size	7.285	2.073	5.593	7.376	9.065	11.429	3485
Leverage	0.213	0.000	0.034	0.181	0.341	0.909	3485
Regulation	0.255	0	0	0	1	1	3485
Rule of Law	0.693	0.306	0.488	0.774	0.853	0.920	3485
GDP	27.714	23.350	26.426	27.905	28.626	30.128	3485
GDP Capita	10.019	6.157	9.212	10.446	10.724	11.685	3485
Ldiff_1	1.458	0.000	0.330	1.660	2.250	3.000	3485
Ldiff_2	0.047	0	0	1	2	2	3485

Table 2 reports descriptive statistics for the variables used in the analyses. Panels A and B restrict the sample to US domestic firms and cross-listed foreign firms, respectively. For detailed definitions of variables, refers to Appendix A.

Table 3
Pearson Correlation

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	***CAR***	1																	
2	***E***	0.2798*	1																
3	***ΔE***	0.1887*	0.2907*	1															
4	***Foreign***	-0.0275*	0.0251*	-0.0138*	1														
5	***Firmage***	0.0826*	0.1585*	0.0006	-0.1538*	1													
6	***Big4***	0.1020*	0.1312*	0.0144*	0.0918*	0.0545*	1												
7	***Growth***	0.1423*	0.0072	0.0286*	-0.0278*	-0.1000*	0.0545*	1											
8	***Persistence***	-0.0021	0.0056	-0.0422*	-0.0150*	-0.0432*	-0.0093	0.1181*	1										
9	***Volatility***	-0.0028	-0.0880*	0.0014	0.0454*	0.0757*	0.1552*	-0.1369*	-0.1477*	1									
10	***Beta***	-0.0427*	-0.1403*	0.0188*	0.1126*	-0.1116*	0.1309*	0.0372*	0.0423*	0.1041*	1								
11	***Size***	0.2209*	0.3615*	0.0194*	0.1460*	0.2210*	0.5154*	0.1687*	0.0122*	0.1820*	0.0556*	1							
12	***Leverage***	-0.0209*	-0.0487*	-0.0303*	0.0006	-0.0008	0.1320*	-0.0771*	-0.1025*	0.1716*	0.0263*	0.1657*	1						
13	***Regulation***	0.0101	0.1263*	0.0001	0.0287*	-0.0268*	-0.0895*	-0.2450*	-0.0140*	0.0470*	-0.1712*	0.0426*	0.0576*	1					
14	***Rule of Law***	0.0300*	-0.0172*	0.0146*	-0.5288*	0.1455*	-0.0162*	0.0005	-0.0146*	0.0356*	-0.1090*	-0.0117*	0.0086	-0.0072	1				
15	***GDP***	0.0024	-0.0119*	0.0023	-0.8730*	0.1207*	-0.1020*	0.0074	0.0027	-0.0202*	-0.0990*	-0.0997*	0.0036	0.0006	0.3339*	1			
16	***GDP Capita***	0.0047	-0.0130*	0.0017	-0.5741*	0.1723*	-0.0381*	-0.0096	-0.0275*	0.0470*	-0.1121*	0.0038	0.0294*	0.0069	0.8801*	0.4256*	1		
17	***Ldiff_1***	-0.0622*	0.0162	-0.0174	0.7720*	-0.1865*	-0.1983*	-0.1341*	0.0938*	-0.1298*	0.1364*	-0.1788*	-0.0343*	0.1640*	-0.6020*	0.1840*	-0.4723*	1	
18	***Ldiff_2***	-0.0354*	0.0119*	-0.0170*	0.7719*	-0.1446*	0.0324*	-0.0330*	0.0128*	-0.0169*	0.1181*	0.0522*	-0.0133*	0.0170*	-0.7196*	-0.6401*	-0.6683*	0.9591*	1

Table 3 reports the Pearson correlation among variables used in the analyses. For detailed definitions of variables, refers to Appendix A. * indicates significance at the 5% (two-tailed).

Table 4
Differential Investor Reaction to Foreign Firms

Variables		(1) *CAR*	(2) *CAR*	(3) *CAR*	(4) *CAR*	(5) *CAR*	(6) *CAR*
E	(β_1)	0.358***	0.408***	0.369***	0.663***	0.922***	1.249***
		(22.60)	(5.09)	(22.33)	(5.41)	(10.23)	(2.74)
ΔE	(β_2)	0.307***	0.100	0.313***	0.295*	0.049	-0.752
		(19.29)	(1.34)	(18.78)	(1.68)	(0.50)	(-1.15)
	($\beta_1+\beta_2$)	0.665***	0.508***	0.682***	0.958***	0.971***	0.497
		(F=1239)	(F=43.84)	(F=1197)	(F=23.73)	(F=62.65)	(F=0.5)
*E*Foreign*	(β_3)			-0.103**	-0.253**	-0.327***	-0.005
				(-2.53)	(-2.14)	(-4.93)	(-0.05)
*ΔE*Foreign*	(β_4)			-0.051	-0.180	0.027	-0.205**
				(-1.05)	(-1.13)	(0.38)	(-1.98)
	($\beta_3+\beta_4$)			-0.154***	-0.433**	-0.300***	-0.210*
				(F=8.83)	(F=6.37)	(F=18.84)	(F=3.58)
Foreign	(β_5)			-0.080***	-0.063*	-0.079***	-0.065**
				(-5.36)	(-1.76)	(-5.28)	(-2.14)
Control Variables							
*E*Firmage / ΔE*Firmage*						0.066***	0.018
	($\beta_6+\beta_7$)					(F=11.64)	(F=0.03)
*E*Big4 / ΔE*Big4*						-0.09*	-0.100
	($\beta_8+\beta_9$)					(F=3.77)	(F=0.16)
*E*Growth / ΔE*Growth*						0.090***	0.166
	($\beta_{10}+\beta_{11}$)					(F=14.46)	(F=1.92)
*E*Volatility / ΔE*Volatility*						-0.263***	-0.950***
	($\beta_{12}+\beta_{13}$)					(F=30.67)	(F=15.92)
*E*Persistence / ΔE*Persistence*						0.426***	0.231
	($\beta_{14}+\beta_{15}$)					(F=48.25)	(F=1.02)
*E*Beta / ΔE*Beta*						-0.038	0.063
	($\beta_{16}+\beta_{17}$)					(F=2.02)	(F=0.29)
*E*Size / ΔE*Size*						0.039***	0.102***
	($\beta_{18}+\beta_{19}$)					(F=8.86)	(F=7.33)
*E*Leverage / ΔE*Leverage*						-0.081	0.651
	($\beta_{20}+\beta_{21}$)					(F=0.69)	(F=2.5)
*E*Regulation / ΔE*Regulation*						0.376***	0.484*
	($\beta_{22}+\beta_{23}$)					(F=34.05)	(F=2.79)
*E*GDP / ΔE*GDP*						-0.083***	-0.071**
	($\beta_{24}+\beta_{25}$)					(F=16.40)	(F=6.56)
*E*GDP Capita / ΔE*GDP Capita*						0.273***	0.166
	($\beta_{26}+\beta_{27}$)					(F=9.31)	(F=2.21)
*E*Rule of Law / ΔE*Rule of Law*						-1.163**	-0.001
	($\beta_{28}+\beta_{29}$)					(F=5.26)	(F=0.00)
Firmage	(β_{30})	0.010***	0.000	0.009***	-0.002	0.010***	-0.000
		(4.79)	(0.01)	(4.20)	(-0.17)	(4.67)	(-0.02)
Big4	(β_{31})	-0.004	0.062**	-0.005	0.063**	-0.007	0.053**
		(-0.91)	(2.00)	(-1.05)	(2.03)	(-1.48)	(2.01)
Growth	(β_{32})	0.025***	0.030***	0.025***	0.029***	0.024***	0.025***
		(18.41)	(4.16)	(18.26)	(4.10)	(16.90)	(3.81)
Persistence	(β_{33})	-0.023***	-0.057**	-0.023***	-0.059**	-0.022***	-0.046*
		(-4.66)	(-2.07)	(-4.83)	(-2.17)	(-4.53)	(-1.81)
Volatility	(β_{34})	-0.003	0.016	-0.003	0.015	-0.006	0.006
		(-0.63)	(1.18)	(-0.64)	(1.12)	(-1.50)	(0.49)
Beta	(β_{35})	-0.011***	-0.003	-0.010***	-0.001	-0.012***	-0.001

		(-4.05)	(-0.21)	(-3.97)	(-0.09)	(-4.68)	(-0.05)
Size	(β_{36})	0.023***	0.025***	0.024***	0.025***	0.025***	0.025***
		(20.67)	(4.26)	(21.29)	(4.21)	(21.01)	(4.39)
Leverage	(β_{37})	-0.035***	-0.243***	-0.036***	-0.243***	-0.036***	-0.180***
		(-3.88)	(-4.14)	(-4.03)	(-4.13)	(-4.09)	(-4.14)
Regulation	(β_{38})	0.013	-0.018	0.012	-0.005	0.003	-0.042
		(1.15)	(-0.45)	(1.15)	(-0.15)	(0.28)	(-1.11)
GDP	(β_{39})	0.004*	0.005	-0.016***	0.002	-0.017***	-0.003
		(1.85)	(0.71)	(-3.52)	(0.19)	(-3.62)	(-0.39)
GDP Capita	(β_{40})	-0.007	-0.019	-0.021**	-0.019	-0.026**	-0.023*
		(-0.70)	(-1.13)	(-2.06)	(-1.19)	(-2.29)	(-1.78)
Rule of Law	(β_{41})	0.139**	0.138*	0.118**	0.134	0.146**	0.143*
		(2.38)	(1.67)	(2.04)	(1.61)	(2.38)	(1.81)
Constant		-0.329***	-0.265	0.449***	-0.099	0.489***	0.194
		(-3.98)	(-1.16)	(2.69)	(-0.33)	(2.84)	(0.82)
Observations		35,366	35,365	35,366	35,365	35,366	35,365
Adjusted R-squared		0.163	0.350	0.164	0.351	0.174	0.390
Fixed Effect		Year Industry	Year Industry	Year Industry	Year Industry	Year Industry	Year Industry
Weight by Country		No	Yes	No	Yes	No	Yes
Cluster		Firm	Firm	Firm	Firm	Firm	Firm

Table 4 reports the regression results of differential investor reaction to foreign firms, Eq.(1). The dependent variable is cumulative abnormal returns for the 12-month period ending three months after the fiscal year-end (*CAR*). For detailed definitions of variables, refers to Appendix A. I suppress the individual coefficients on *E**control variables and *ΔE**control variables, and report the sum of two coefficients. When estimating the coefficients' standard error, I use a firm clustering procedure that accounts for dependence between yearly observations relating to the same company. Unless stated otherwise, t-statistics are reported in the parentheses. For the statistics significance for the sum of coefficients, F-statistics are reported in the parentheses. *, **, *** indicates significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 5
Differential Investor Reaction Depending on Linguistic Distance

Variables		(1) *CAR*	(2) *CAR*	(3) *CAR*	(4) *CAR*
E	(β_1)	0.368***	0.959***	0.369***	0.967***
		(22.50)	(10.53)	(22.60)	(10.62)
ΔE	(β_2)	0.312***	0.049	0.311***	0.050
		(18.96)	(0.51)	(18.99)	(0.51)
	($\beta_1 + \beta_2$)	0.680***	1.008***	0.680***	1.017***
		(F=1229.22)	(F=66.75)	(F=1240.49)	(F=68.03)
*E*Ldiff*	(β_3)	-0.060***	-0.221***	-0.082***	-0.306***
		(-2.61)	(-5.11)	(-2.78)	(-5.27)
*ΔE*Ldiff*	(β_4)	-0.030	0.023	-0.038	0.045
		(-1.08)	(0.47)	(-1.06)	(0.72)
	($\beta_3 + \beta_4$)	-0.090***	-0.198***	-0.120***	-0.261***
		(F=7.32)	(F=15.68)	(F=8.08)	(F=16.32)
Ldiff	(β_5)	-0.019***	-0.013**	-0.017**	-0.009
		(-3.20)	(-2.18)	(-2.16)	(-1.14)
Constant		-0.088	-0.107	-0.169	-0.192*
		(-0.81)	(-0.96)	(-1.60)	(-1.78)
Control Variables (CV)		Included	Included	Included	Included
Interactions of CV with E, ΔE		Excluded	Included	Excluded	Included
Observations		35,366	35,366	35,366	35,366
Adjusted R-squared		0.163	0.174	0.163	0.174
Fixed Effect		Year Industry	Year Industry	Year Industry	Year Industry
Cluster		Firm	Firm	Firm	Firm

Table 5 reports the regression results of differential investor reaction depending on linguistic distance, Eq.(2). The dependent variable is cumulative abnormal returns for the 12-month period ending three months after the fiscal year-end (*CAR*). For detailed definitions of variables, refers to Appendix A. I suppress the individual coefficients on *E**control variables and *ΔE**control variables, and report the sum of two coefficients. When estimating the coefficients' standard error, I use a firm clustering procedure that accounts for dependence between yearly observations relating to the same company. Unless stated otherwise, t-statistics are reported in the parentheses. For the statistics significance for the sum of coefficients, F-statistics are reported in the parentheses. *, **, *** indicates significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 6
Differential Investor Reaction Depending on Linguistic Distance: Cross-Listed Foreign Firms Only

Variables		(1) *CAR*	(2) *CAR*	(3) *CAR*	(4) *CAR*	(5) *CAR*
E	(β_1)	0.264***	0.373***	3.341***	0.346***	3.617***
		(6.36)	(4.79)	(3.14)	(4.87)	(3.38)
ΔE	(β_2)	0.229***	0.245***	0.751	0.247***	0.893
		(5.54)	(3.17)	(0.84)	(3.56)	(0.99)
	($\beta_1 + \beta_2$)	0.493***	0.618***	4.092***	0.593***	4.510***
		(F=114.42)	(F=54.17)	(F=9.09)	(F=62.11)	(F=10.85)
*E*Ldiff*	(β_3)		-0.061	-0.089*	-0.065	-0.130**
			(-1.59)	(-1.75)	(-1.46)	(-2.25)
*ΔE*Ldiff*	(β_4)		-0.014	-0.017	-0.020	-0.035
			(-0.34)	(-0.34)	(-0.44)	(-0.60)
	($\beta_3 + \beta_4$)		-0.075*	-0.106*	-0.085*	-0.165**
			(F=2.78)	(F=3.13)	(F=2.78)	(F=5.97)
Ldiff	(β_5)		0.003	0.005	0.004	0.010
			(0.38)	(0.66)	(0.47)	(1.07)
Constant		0.313	0.292	0.244	0.278	0.206
		(1.27)	(1.17)	(0.98)	(1.12)	(0.82)
Control Variables (CV)		Included	Included	Included	Included	Included
Interactions of CV with E, ΔE		Excluded	Excluded	Included	Excluded	Included
Observations		3,468	3,468	3,468	3,468	3,468
Adjusted R-squared		0.185	0.185	0.196	0.185	0.197
Fixed Effect		Year Industry	Year Industry	Year Industry	Year Industry	Year Industry
Cluster		Firm	Firm	Firm	Firm	Firm

Table 6 reports the regression results of differential investor reaction depending on linguistic distance, Eq.(2). It restricts the sample to cross-listed foreign firms. The dependent variable is cumulative abnormal returns for the 12-month period ending three months after the fiscal year-end (*CAR*). For detailed definitions of variables, refers to Appendix A. I suppress the individual coefficients on *E**control variables and *ΔE**control variables, and report the sum of two coefficients. When estimating the coefficients' standard error, I use a firm clustering procedure that accounts for dependence between yearly observations relating to the same company. Unless stated otherwise, t-statistics are reported in the parentheses. For the statistics significance for the sum of coefficients, F-statistics are reported in the parentheses. *, **, *** indicates significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 7
Differential Investor Reaction to Foreign Firm: English-Speaking Countries Only

Variables		(1) *CAR*	(2) *CAR*	(3) *CAR*
E	(β_1)	0.340***	0.340***	0.896***
		(21.45)	(21.41)	(9.68)
ΔE	(β_2)	0.286***	0.288***	0.205**
		(17.66)	(17.78)	(2.10)
	($\beta_1 + \beta_2$)	0.626***	0.628***	1.101***
		(F=1075.03)	(F=1076.18)	(F=77.45)
*E*Foreign*	(β_3)		0.194	0.609
			(0.37)	(1.00)
*ΔE*Foreign*	(β_4)		-2.157	-1.873
			(-1.41)	(-1.18)
	($\beta_3 + \beta_4$)		-1.963	-1.264
			(F=2.02)	(F=0.84)
Foreign	(β_5)		2.810	-0.100
			(1.36)	(-1.63)
Constant		-1.862	-13.571	0.082
		(-1.26)	(-1.48)	(0.05)
Control Variables (CV)		Included	Included	Included
Interactions of CV with E, ΔE		Excluded	Excluded	Included
Observations		32,343	32,343	32,343
Adjusted R-squared		0.153	0.153	0.165
Fixed Effect		Year	Year	Year
		Industry	Industry	Industry
Cluster		Firm	Firm	Firm

Table 7 reports the regression results of differential investor reaction to foreign firms, Eq.(1). It restricts the sample to English-speaking countries. The dependent variable is cumulative abnormal returns for the 12-month period ending three months after the fiscal year-end (CAR). For detailed definitions of variables, refers to Appendix A. I suppress the individual coefficients on E*control variables and ΔE*control variables, and report the sum of two coefficients. When estimating the coefficients' standard error, I use a firm clustering procedure that accounts for dependence between yearly observations relating to the same company. Unless stated otherwise, t-statistics are reported in the parentheses. For the statistics significance for the sum of coefficients, F-statistics are reported in the parentheses. *, **, *** indicates significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 8
Sensitivity Analysis

Variables		(1) *CAR*	(2) *CAR*	(3) *CAR*	(4) *CAR*	(5) *CAR*
E	(β_1)	1.570	0.926***	2.545***	0.958***	0.903***
		(1.56)	(10.20)	(3.23)	(9.72)	(8.98)
ΔE	(β_2)	1.560	0.048	-0.775	0.076	0.145
		(1.16)	(0.49)	(-1.02)	(0.73)	(1.33)
	($\beta_1+\beta_2$)	3.130**	0.974***	1.770*	1.034***	1.048***
		(F=5.89)	(F=62.15)	(F=2.82)	(F=61.08)	(F=60.39)
*E*Ldiff*	(β_3)	-0.152	-0.498***	-0.510***	-0.174***	-0.197***
		(-0.70)	(-4.53)	(-5.34)	(-4.11)	(-4.39)
*ΔE*Ldiff*	(β_4)	-0.259	0.049	0.248**	-0.032	0.016
		(-1.11)	(0.39)	(2.21)	(-0.65)	(0.32)
	($\beta_3+\beta_4$)	-0.411*	-0.449***	-0.262**	-0.206***	-0.181***
		(F=3.07)	(F=13.60)	(F=4.97)	(F=13.17)	(F=12.13)
Ldiff	(β_5)	0.061	-0.048***	0.030	-0.012*	-0.009
		(1.37)	(-3.25)	(1.57)	(-1.86)	(-1.36)
*E*pdi / ΔE*pdi*		-0.033**				
	($\beta_6+\beta_7$)	(F=3.93)				
*E*idv / ΔE*idv*		-0.011				
	($\beta_8+\beta_9$)	(F=1.53)				
*E*mas / ΔE*mas*		-0.012*				
	($\beta_{10}+\beta_{11}$)	(F=3.00)				
*E*uai / ΔE*uai*		0.02				
	($\beta_{12}+\beta_{13}$)	(F=1.87)				
*E*lto / ΔE*lto*		0.012				
	($\beta_{14}+\beta_{15}$)	(F=1.14)				
*E*ivr / ΔE*ivr*		-0.006				
	($\beta_{16}+\beta_{17}$)	(F=0.40)				
pdi	(β_{18})	0.002				
		(1.07)				
idv	(β_{19})	0.004**				
		(2.35)				
mas	(β_{20})	-0.002				
		(-1.21)				
uai	(β_{21})	0.000				
		(0.30)				
lto	(β_{22})	-0.001				
		(-0.82)				
ivr	(β_{23})	0.003				
		(1.53)				
*E*ABS_DA / ΔE*ABS_DA*						-0.307***
	($\beta_{24}+\beta_{25}$)					(F=15.79)
ABS_DA	(β_{26})					-0.094***
						(-6.68)
Constant		-0.665**	-0.047	-0.198	-0.148	-0.038
		(-2.11)	(-0.44)	(-0.72)	(-1.25)	(-0.32)
Control Variables (CV)		Included	Included	Included	Included	Included
Interactions of CV with E, ΔE		Included	Included	Included	Included	Included
Observations		33,633	35,366	2,268	32,146	29,838
Adjusted R-squared		0.172	0.174	0.166	0.169	0.179

Fixed Effect	Year Industry	Year Industry	Year Industry	Year Industry	Year Industry
Cluster	Firm	Firm	Firm	Firm	Firm

Table 8 reports the regression results of additional analyses. The dependent variable is cumulative abnormal returns for the 12-month period ending three months after the fiscal year-end (CAR). For detailed definitions of variables, refers to Appendix A. I suppress the individual coefficients on E*control variables and ΔE*control variables, and report the sum of two coefficients. When estimating the coefficients' standard error, I use a firm clustering procedure that accounts for dependence between yearly observations relating to the same company. Unless stated otherwise, t-statistics are reported in the parentheses. For the statistics significance for the sum of coefficients, F-statistics are reported in the parentheses. *, **, *** indicates significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 9
Tests with Propensity Score Matched Sample

Panel A. Comparison of Firm Characteristics

	Unmatched (N=35,383)				Matched (N=6,724)			
	US Firms	Foreign Firms	Diff.	t-stat	US Firms	Foreign Firms	Diff.	t-stat
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
E	-0.004	0.008	-0.012	-4.75	0.007	0.008	-0.001	-0.29
ΔE	0.005	-0.001	0.006	2.50	0.001	-0.001	0.002	0.67
Firmage	2.674	2.262	0.412	32.08	2.238	2.270	-0.032	-1.71
Big4	0.730	0.858	-0.128	-21.05	0.861	0.858	0.003	0.42
Growth	1.759	1.595	0.163	5.65	1.616	1.600	0.016	0.37
Persistence	0.234	0.218	0.016	2.83	0.215	0.218	-0.003	-0.39
Volatility	0.351	0.413	-0.062	-7.69	0.421	0.411	0.010	0.86
Beta	1.030	1.282	-0.252	-20.87	1.284	1.277	0.007	0.45
Size	6.305	7.285	-0.979	-25.63	7.194	7.263	-0.069	-1.39
Leverage	0.213	0.213	0.000	-0.12	0.216	0.213	0.003	0.52
Regulation	0.217	0.255	-0.038	-5.21	0.251	0.254	-0.003	-0.37

Panel B. Result with Matched Sample

Variables		(1) *CAR*	(2) *CAR*
E	(β_1)	0.282**	0.691***
		(2.11)	(3.53)
ΔE	(β_2)	0.103	-0.051
		(0.66)	(-0.21)
	$(\beta_1+\beta_2)$	0.385**	0.640**
		(F=5.39)	(F=5.13)
*E*Foreign*	(β_3)	-0.028	-0.137*
		(-0.50)	(-1.74)
*ΔE*Foreign*	(β_4)	-0.107	-0.059
		(-1.61)	(-0.72)
	$(\beta_3+\beta_4)$	-0.135*	-0.196**
		(F=3.71)	(F=5.69)
Foreign	(β_5)	-0.028***	-0.073***
		(-3.89)	(-4.58)
Constant		-0.128**	0.410**
		(-2.11)	(2.26)
Control Variables (CV)		Included	Included
Interactions of CV with E, ΔE		Excluded	Included
Observations		7,333	7,333
Adjusted R-squared		0.159	0.166

Fixed Effect	Year	Year
	Industry	Industry
Cluster	Firm	Firm

Table 9 illustrates the results using propensity score matched sample. Panel A compares the characteristics between US domestic firms and cross-listed foreign firms. Panel B shows the regression results using matched sample. For detailed definitions of variables, refers to Appendix A. I suppress the individual coefficients on E*control variables and ΔE*control variables, and report the sum of two coefficients. When estimating the coefficients' standard error, I use a firm clustering procedure that accounts for dependence between yearly observations relating to the same company. Unless stated otherwise, t-statistics are reported in the parentheses. For the statistics significance for the sum of coefficients, F-statistics are reported in the parentheses. *, **, *** indicates significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

국문 초록

본 연구는 투자자들이 이익 정보를 평가하는 경로를 통찰하기 위해 교차 상장된 외국 기업(CLFF)과 국내 기업과의 시장 반응을 비교한다. 2002년부터 2018년까지 미국 증시에서 거래된 연간 관측치를 사용하고 이익반응계수를 시장 반응의 대용치로 삼아, 미국 투자자들이 미국 국내 기업에 비해 CLFF에 대해 편견을 보인다는 것을 발견하였다. 미국 증시에 상장된 모든 기업들은 동일한 언어로 작성되고 동일한 공시 표준을 준수해야 하지만, 시장의 반응은 CLFF가 위치한 국가의 언어적 거리와 음의 상관관계가 있다는 것으로 나타났다. 영어가 주요 언어인 나라에 위치한 CLFF와 비교했을 때 미국 국내 기업들의 이익 정보에 대한 시장 반응은 유의미한 차이를 보이지 않았다. 따라서 본 연구는 경제 요인, 법률 체제, 문화를 포함한 다른 국가 수준의 통제 변수를 통제한 후에도 언어적 거리가 투자자가 외국 기업이 보고한 회계 정보의 신뢰성을 인식하는 핵심 경로라는 것을 밝혀낸다.

주요어: 언어적 거리, 시장 반응, 자본 시장, 투자자 행동

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