

**The Information Value of Earnings Announcements of
US-Listed Foreign Firms**

by

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I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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ABSTRACT

Foreign listers account for a growing and substantial share of the U.S. capital market, yet disclosures of foreign listers are generally under-studied. Despite the disclosures of foreign listers appearing in similar forms to those of domestic listers, the regulations and filing requirements of foreign listers differ in substantial ways. Motivated by the economic significance of foreign listers and their distinct reporting regulations, this paper examines the impact of foreign listers' earnings announcements (EAs) on bid-ask spreads surrounding the EA date and investigates whether and how it is different from the impact of domestic listers' EAs. Firstly, I find that compared to their domestic counterparts, foreign listers exhibit a greater level of bid-ask spreads in the pre-EA period, a smaller spread increase at announcement, and a greater post-announcement spread decrease. These results together indicate that the EAs of foreign listers disclose *relatively* more new information to unsophisticated investors than those of domestic listers. In addition, the differences in bid-ask spread patterns between foreign listers and domestic listers are generally more pronounced for foreign listers from weaker regulatory regimes, for those with lower levels of analyst following and lower institutional ownership, and for those updating earnings on a less timely or less frequent basis. These results are all consistent with the notion that the documented differences in bid-ask spread patterns between foreign listers and domestic listers surrounding the EA date are likely to be associated with foreign listers' weaker information environment. Next, I explore how the textual features of foreign listers' EAs affect the impact of EAs on bid-ask spreads. I find that foreign listers' EAs with more words, more numbers, and more forward-looking information are generally associated with a higher bid-ask spread spike at announcement and a smaller bid-ask spread decrease over the ten days after the EA date, suggesting that unsophisticated investors need a longer time to digest additional

new information. Additional analyses further support that the disadvantage of unsophisticated investors in processing additional new information is likely to be driven by those EAs with extensive information (i.e., EAs at the top quintile counts of words, numbers or forward-looking sentences), and this disadvantage gradually disappears in a longer window (i.e., within 20 days after the EA date). My study contributes to the foreign disclosure literature by emphasizing the greater information value of foreign listers' EAs than that of domestic listers' EAs in reducing bid-ask spreads. It also contributes to policymakers by presenting the potential benefits of implementing more stringent reporting requirements for foreign listers to reduce overall bid-ask spreads, particularly for those from weaker regulatory regimes, those with fewer information intermediaries, and those with less frequent and timely earnings updates.

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CHAPTER 1 Introduction

Information asymmetry between sophisticated investors and unsophisticated investors has been viewed as one of the main frictions in capital markets (Amiram et al., 2016; Bushee et al., 2010; Kim & Verrecchia, 1994).¹ Motivated by the economic significance of foreign listers and their distinct reporting regulations, I investigate whether and how the information value of the public disclosures of U.S.-listed foreign firms (foreign listers) is different from those of U.S. domestic firms (domestic listers).² Specifically, I explore this issue by examining the effect of foreign listers' earnings announcements (EAs) on the bid-ask spreads in a short window surrounding the EA date.

Foreign equities are a large and active market in the U.S. According to the NYSE, 23% of the current NYSE-listed firms are foreign listers.³ Based on the Citi Depository Receipt Services Year-End Reports (2018, 2021) from 2016 to 2020, U.S. investment in non-U.S. equities increased from \$7 trillion to \$9 trillion, and the trading volume of depository receipts increased from \$154 billion to \$251 billion shares.⁴ However, in contrast to the extensive academic inquiry into domestic firms' disclosures, the disclosures of foreign listers, except for their annual reports, are generally under-studied. Unlike domestic listers, foreign listers are exempt from Regulation Fair

¹ I define sophisticated investors in a broad sense following Amiram et al. (2016). In the foreign lister context, sophistication under this broad definition could arise from the scale and expertise of institutional investors, who are subject to fewer limitations in terms of time and effort. Similarly, sophistication could also arise from the scale and expertise of retail investors, who face lower levels of language and information barriers in gathering investment-relevant information related to foreign listers.

² I define foreign listers as U.S.-listed foreign firms who file 6-Ks, 20-Fs, or 40-Fs and are not headquartered in the U.S. I define domestic listers as U.S.-listed domestic firms who file 8-Ks, 10-Qs, and 10-Ks.

³ More details are available at the NYSE website: <https://www.nyse.com/listings/international-listings>, accessed November 01, 2022.

⁴ Depository receipts (DRs) are one of the most common listing instruments of foreign firms listed in the U.S. market. There are other listing forms, such as direct listing for Canadian listers, New York registered shares (NYRSs) for Dutch listers, and global registered shares (GRSs) for some big international firms, such as UBS, that are listed on multiple stock exchanges in different countries.

Disclosure (Reg FD). They are generally under lighter SEC reporting requirements than domestic listers in terms of both filing frequency and disclosure formality. These distinct institutional features mean that the disclosure and information environment of foreign listers may exhibit different patterns as compared to domestic listers. Recently, the SEC issued a public statement expressing concerns about the disclosure risk of foreign firms, warning that “*significant asymmetry holds true even though disclosures, price quotes, and other investor-oriented information often are presented in substantially the same form as for U.S. domestic companies*” (SEC, 2020).⁵ My study adds to the SEC’s discussion about whether the current regulations for foreign listers effectively serve the SEC’s mission of protecting investors and maintaining fair markets (Cross, 2012).

Extant domestic studies have demonstrated that there is an increase in bid-ask spreads (i.e., a bid-ask spread “spike”) at announcement and a decrease in bid-ask spreads over the ten days subsequent to the announcement (Amiram et al., 2016; Collier & Yohn, 1997; Lee et al., 1993; Stoumbos, 2022; Yohn, 1998). Based on Kim and Verrecchia’s (1994) theory, these findings indicate that the EAs of domestic listers mainly contain information that is new to all external market participants. However, due to the unique reporting regulations (e.g., exemption from Reg FD) and the greater information and language barriers faced by unsophisticated investors when gathering information for foreign listers, the bid-ask spreads may exhibit a different pattern surrounding foreign listers’ EAs compared to that of domestic listers. Therefore, this study

⁵ Specifically, the SEC points out several reasons for concern, including the significant variation in the financial information quality, standards, and requirements; the PCAOB’s inability to inspect audit work papers in China; and the limited ability of the U.S. authorities to bring actions against foreign listers from emerging markets. My study speaks to the first concern by investigating whether the information value of foreign lister EAs is influenced by their home-market reporting requirements and regulations.

contributes to a more complete understanding of the information value of the EAs of foreign firms listed in the U.S. market.

My sample includes 1,285 foreign firms from 59 countries that are listed in the U.S. market from 2005 to 2021. I focus on the [-10, +10] window surrounding the firm's EA date following the previous domestic studies of announcement-date bid-ask spreads (Amiram et al., 2016; Stoumbos, 2022; Yohn, 1998).⁶ I match the foreign lister EAs with comparable domestic firm quarters, yielding a final sample composed of 27,806 pairs of foreign and domestic firm-quarters and 1,167,852 daily observations.

I document that foreign listers experience a temporary increase in bid-ask spreads (i.e., a bid-ask spread spike) at announcement and a decrease in bid-ask spreads over the ten days after the EAs. In addition, the bid-ask spread spike at announcement is lower, and the post-announcement bid-ask spread decrease is greater, than those of comparable domestic listers. Following Kim and Verrecchia's (1994) theory, my results indicate that, although both foreign listers' EAs and domestic listers' EAs mainly contain information that is new to all external market participants, foreign listers' EAs contain *relatively* more information that is new only to unsophisticated investors. In other words, unsophisticated investors in foreign listers rely more on EAs to acquire new information about firms than unsophisticated investors in domestic listers.

Further analysis shows that the spread spike at announcement is lower, and the post-announcement spread decrease is greater when foreign listers are from weaker regulatory countries, when they have a comparatively low level of analyst following and institutional ownership, when

⁶ Ex ante, it is unclear whether [-10, +10] is an appropriate window in the context of foreign lister EAs. Untabulated results indicate that the results reported in Table 4 are robust to using [-5,+1] window and [-2,+1] window. The results reported in Table 6 are also robust to using [-5,-2] v.s. [+2,+5] window, and [-10,-7] v.s. [+7,+10] window.

there is a greater number of days elapsed from their fiscal quarter-end date to the EA date (i.e., a longer EA lag), and when they update their earnings on a less timely basis. These findings further indicate that EAs are a more important channel for foreign listers to reduce bid-ask spreads in the U.S. markets, particularly for those from weaker regulatory countries, for those lacking financial intermediaries, and for those updating EAs on a less timely and less frequent basis.

In addition, I focus on foreign listers' EAs and analyze how the textual features of their EAs affect the EA-date and post-EA spread patterns. By using a combination of keyword searching, filing time screening, and manual verification, I identify 16,575 foreign listers' EAs from their 6-K filings from 2005 to 2018. I document that foreign listers' EAs with higher word counts, more numbers, and more forward-looking sentences are each associated with a higher bid-ask spread spike at announcement. In addition, foreign listers' EAs with higher word counts and more forward-looking sentences are associated with a smaller decrease in bid-ask spreads over the ten days after the EAs. Following Kim and Verrecchia's (1994) theory, these results are all consistent with the notion that the additional words, numbers, and forwarding-looking sentences disclosed in the EAs intensify the difficulty of unsophisticated investors in processing information in the short term, thereby increasing the information asymmetry between unsophisticated and sophisticated investors.

Further analyses indicate that higher levels of disclosure in foreign listers' EAs are associated with a greater decrease in spreads in the [+16, +20] window after the EA date. In addition, the aforementioned smaller decrease in bid-ask spreads associated with higher levels of disclosure over the ten days after the EAs are driven by those listers in the top quintile of word counts, number counts, and forward-looking sentence counts. This finding suggests that investors may still experience information overload in a short period after the announcement date when the

foreign EAs contain extensive information. Furthermore, for foreign listers from better regulatory regimes, more words, more numbers, and more forward-looking information in their EAs are associated with lower levels of spreads over longer terms. However, there is no such association for foreign listers from weaker regulatory regimes. Taken together, these findings are consistent with the notion that the information overloading effects are temporary, and the unsophisticated investors can eventually benefit from higher levels of disclosure for firms from higher regulatory regimes.

The contributions of this study are as follows. First, it expands the scope of the literature related to information asymmetry as proxied by bid-ask spreads. To the best of my knowledge, existing empirical literature about the effects of public disclosure on bid-ask spreads surrounding the announcement date has exclusively focused on U.S. domestic firms (Amiram et al., 2016; Coller & Yohn, 1997; Lee et al., 1993; Stoumbos, 2022; Yohn, 1998). Given the unique reporting regulations and the heightened information and language barriers faced by unsophisticated investors when acquiring information about foreign listers, the bid-ask spreads surrounding foreign listers' EAs may manifest a distinct pattern compared to those of domestic listers. In addition, extant literature lacks studies on how textual features of the EAs affect the pattern of bid-ask spreads surrounding the announcement date using the setting of either domestic listers or foreign listers in the U.S. market. My research fills this void by providing a comprehensive understanding of how public disclosure influences bid-ask spreads.

This study also contributes to the foreign firm disclosure literature. While numerous studies have explored the information value of foreign firm disclosures, their focus primarily centers on annual reports or annual earnings updates (Bailey et al., 2006; Defond et al., 2007; Hung et al., 2015; Landsman et al., 2012; Lau et al., 2016). However, as highlighted by Boone et al. (2021),

annual filings constitute merely 5% of total SEC filings by foreign firms. In addition, the previous literature indicates that interim disclosure may serve a different informational role from annual disclosure (Botosan & Plumlee, 2002; Brown & Hillegeist, 2007; Francis et al., 2008). As Lundholm et al. (2014) state, one possible reason for the lack of textual studies about foreign firms' interim disclosure relates to the data collection difficulties. With a combination of textual analysis, filing time screening, and manual validation, I identify and analyze foreign listers' EAs – another critical channel through which they communicate their financial performance other than annual reports. Furthermore, my study differs from the cross-listed firm literature in two key respects. First, previous literature focuses on the effects of cross-listing (Bailey et al., 2006; Doidge et al., 2004; Lang et al., 2003), whereas my study focuses on the cross-sectional variations between U.S. and foreign listers subsequent to their U.S. listing. Additionally, there is a difference between the foreign lister and the cross-lister samples due to a significant portion of foreign listers being U.S.-listed only in recent years (Boone et al., 2021).⁷ Therefore, investigating foreign listers' quarterly EAs could add to a more complete picture of the informational effects of foreign firm disclosure.

Finally, my study corroborates concerns regarding the SEC's current one-size-fits-all approach to regulating foreign lister disclosures (Boone et al., 2021). I present evidence that, compared to domestic listers, foreign listers exhibit higher levels of spreads prior to the announcement, particularly among listers from weaker regimes, with fewer information intermediaries, and with less frequent and timely earnings updates. In addition, unsophisticated investors in foreign listers depend more on the EAs to acquire new information than unsophisticated investors in domestic listers. Therefore, my study contributes to the discussion on

⁷ According to Boone et al. (2020) p. 37 Figure 1, from 2004 to 2013, the percentage of foreign listers that are U.S.-listed only increased from around 15% to above 35%.

whether the SEC's current regulations for foreign listers' disclosure effectively serve the SEC's mission of protecting investors and maintaining fair markets (Cross, 2012).⁸

The rest of the paper is organized as follows. Chapter 2 discusses the institutional background of foreign listers in the U.S. market and presents a review of relevant literature. Chapter 3 examines whether and how the impact of foreign listers' EAs on bid-ask spreads surrounding the EA date differs from that of domestic listers' EAs. Chapter 4 investigates how textual features of foreign listers' EAs are associated with the impact of EAs on bid-ask spreads surrounding the EA date. Chapter 5 concludes my dissertation.

⁸ A critical component of the SEC's mission is to protect the retail investor. As emphasized by Mary Jo White in 2014 during her tenure as SEC chair, "the retail investor must be a constant focus of the SEC" and "if we fail to serve and safeguard the retail investor, we have not fulfilled our mission." Her full transcript is available at <https://www.sec.gov/news/speech/mjw-speech-032114-protecting-retailinvestor>

CHAPTER 2

Institutional Background and Literature Review

2.1 Introduction

This chapter introduces the institutional background of U.S.-listed foreign firms and reviews three streams of literature relevant to my dissertation. Section 2.2 introduces foreign listers in the U.S. market, the regulation and disclosure requirements of which are substantially different from U.S. domestic listers. Section 2.3 introduces the analytical and empirical literature investigating the relationship between higher levels of disclosure and information asymmetry. Section 2.4 reviews studies about the disclosure of U.S.-listed foreign firms and their information environment, and Section 2.5 reviews the U.S. and foreign textual studies related to the amount (levels) of disclosure, which is one of the disclosure characteristics that has been greatly examined by the textual analysis literature and is most relevant to my dissertation.

2.2 Institutional Background

2.2.1 Definition of Foreign Private Issuers (FPIs) and their Filing Obligations

According to the SEC, a foreign company listed in the U.S. market will qualify as an FPI if:

- (1) 50% or less of its outstanding voting securities are held by U.S. residents; or
- (2) more than 50% of its outstanding voting securities are held by U.S. residents, and none of the following three circumstances applies:
 - a. the majority of its executive officers or directors are U.S. citizens or residents;
 - b. more than 50% of the issuer's assets are located in the United States; or
 - c. the issuer's business is administered principally in the United States.

In short, an FPI refers to any non-U.S. incorporated issuer that has less than 50% of U.S. resident shareholders or the location of their main business is determined to be outside the U.S. Foreign listers that are qualified as FPIs are required to *furnish* material events and interim financial reports using 6-Ks and to file annual financial reports using 20-Fs (40-Fs).⁹ Unlike 20-Fs (40-Fs) and 10-Ks, which share similar formats and are under similar disclosure requirements, 6-Ks and 8-Ks have two main differences that could potentially affect the information value of the filings.

First, firms must file an 8-K within four business days after an event has occurred. In contrast, 6-Ks are not subject to the same specific requirement but instead are only required to be filed “*promptly*,” with no clear definition of what “*promptly*” means in this context. Croff et al. (2014) interpret “*promptly*” as “*the same day of publication for financial and other material information that would be likely to have an immediate market impact*” and “*as soon as practicable but no more than 30 days for other events.*” However, as Cohen et al. (2018) point out, the SEC does not bring enforcement actions against FPIs for missing or late 6-K filings in the same manner as against US issuers’ missing or late 8-K filings.

Second, 6-Ks are considered as “*furnished*” rather than as “*filed*,” as in the case of 8-Ks, and thus, 6-Ks are subject to a less stringent set of legal obligations. As Lang, Raedy, and Wilson (2006) mention, the SEC in practice faces difficulties when pursuing claims against foreign listers, although cross-listed foreign firms are under the same de jure security laws as U.S. firms. The SEC (2020) also highlighted in their recent statement that the U.S. authorities “*often have*

⁹ According to the Thomson Reuters, an FPIs may use Form 40-F if it is a Canadian lister that is incorporated in Canada, has been in compliance with the periodic reporting requirements of the regulatory authority in Canada for at least the previous 12 months, and has a public float equal or more than US\$75 million. More details are available at: [https://ca.practicallaw.thomsonreuters.com/6-386-0013?transitionType=Default&contextData=\(sc.Default\)&firstPage=true](https://ca.practicallaw.thomsonreuters.com/6-386-0013?transitionType=Default&contextData=(sc.Default)&firstPage=true)

substantial difficulties in bringing and enforcing actions against non-U.S. companies and non-U.S. persons, including company directors and officers.” The SEC also emphasizes that the rights of U.S. investors in foreign listers may also be limited because “*class action securities law and fraud claims generally are difficult or impossible to pursue as a matter of law or practicality in many emerging markets.*”

In summary, the disclosure requirements and regulations of foreign listers are generally less stringent than those of domestic U.S. listers, and the U.S. authorities in practice face difficulties when pursuing claims and bringing enforcement actions against foreign listers and their managements for missing or late filings or disclosing misleading information.

2.2.2 The SEC Filings Related to Foreign Listers’ Quarterly EAs

Financial results such as periodic earnings reports are one of the major reasons for foreign listers’ 6-K filings (Boone et al., 2021). As a comparison, U.S. listers file 10-Qs for interim earnings reports. There are several disclosures related to firms’ quarterly earnings. First, a firm may announce its earnings through a press release. It *may* file a 6-K or an 8-K with the SEC in relation to this EA, and if so, the 6-K or the 8-K is usually provided in a *timely* fashion.¹⁰ Afterwards, a foreign lister *may* furnish 6-Ks containing their quarterly financial reports and *must* file 20-Fs or 40-Fs containing annual financial reports with the SEC. In contrast, a domestic lister *must* file both 10-Qs and 10-Ks containing their quarterly and annual financial reports, respectively.

According to the SEC, all the U.S. listers have to separately file a 10-Q for each quarter, and the 10-Qs should be filed within 40 or 45 days after the fiscal period-end date, depending on

¹⁰ As mentioned in the previous section 2.2.1, for domestic lister “*timely*” means within four business days whereas for foreign lister there is no clear definition.

whether they are Accelerated Filers or Non-accelerated Filers. For FPIs, however, the SEC does not have a clear deadline for their quarterly financial filings and relies heavily on the rules of their U.S. listing exchanges and their home-market regulations. For example, starting from 2006 (2016), the NASDAQ (NYSE) requires FPIs listed in the exchange to submit 6-Ks containing at least their half-year balance sheets and income statements within six months after the second fiscal quarter (Cross, 2012; Gelfond, 2016). However, there is no such requirement for the FPIs listed in other U.S. exchanges. In addition, according to Boone et al. (2021), the quarterly financial filing deadlines based on FPIs' home-country regulations can range from 20 days (Mexico) to 90 days (several countries). In other words, even if an FPI furnishes a 6-K for its quarterly financials right after disclosing this information in its home country, this financial update still could be three months after the FPI's fiscal quarter-end, which is much less timely than a comparable U.S. lister.

In summary, compared to U.S. listers, foreign listers may disclose their quarterly earnings in a less frequent and less timely manner depending on their U.S. exchange rules, their home market regulations, and their own disclosure choices. The comparatively delayed and infrequent earnings updates provide sophisticated investors greater opportunities to gain access to information during the non-announcement periods, which potentially widens the information gap between investors in foreign listers prior to their EAs.

2.2.3 Foreign Listers' Exemptions from Reg FD

Another unique regulatory feature related to foreign listers is that foreign listers are exempt from Reg FD, which potentially affects the informational role of foreign lister disclosures.

Reg FD, which became effective in October 2000, was designed by the SEC to prevent public firms' selective disclosure to a limited group of investors, such as analysts and institutional shareholders.¹¹ This exemption from Reg FD provides greater opportunities for sophisticated investors in foreign listers to gain access to information prior to the EAs, yet foreign listers have no obligation to disclose that information to all investors in the U.S. market. In other words, the exemption of Reg FD potentially leads to a wider pre-EA information gap among investors in foreign listers than in domestic listers.

2.2.4 The Difficulty of Extracting Foreign Listers' Quarterly EAs from their 6-K Filings

As mentioned by Boone et al. (2021), 6-Ks filed by foreign listers are not itemized, leading to great difficulty in extracting the specific type of disclosure, such as EAs. In addition, there are great variations among the format of foreign listers' 6-K filings. Based on my investigation, it is not uncommon for foreign listers to group several events into one 6-K filing with several exhibits or even into one 6-K filing with only one exhibit, which brings additional difficulties in correctly extracting the EA portion from such 6-K filings. Due to the data extraction difficulties, the textual analysis studies about foreign listers' disclosure other than their annual financial reports are quite limited.

To the best of my knowledge, there are two studies that have examined the textual features of foreign listers' EAs: Lundholm et al. (2014) and Henry et al. (2021). However, both studies only include fourth-quarter EAs in their samples. One potential reason is that foreign listers have to file their annual reports (using 20-Fs/40-Fs) separately from their fourth-quarter EAs (using 6-Ks). For other quarters, foreign listers need to file both quarterly financial reports

¹¹ Because foreign listers are exempt from Reg FD, they were used as a control group to rule out the influence of other concurrent events by several Reg FD studies such as Francis et al. (2008) and Chen et al. (2010).

and quarterly EAs using 6-Ks (if they choose to provide both). In this case, it is even harder to identify the EA 6-Ks correctly due to the similarity in the contents between quarterly EAs and quarterly financial reports (i.e., similar keywords). Therefore, I used a combination of keyword searching, filing time screening, and manual verification when necessary to identify foreign listers' EAs from their 6-K filings.

2.3 The Impact of Disclosure on Information Asymmetry Among Investors

There has been a considerable amount of analytical and empirical literature investigating the relationship between levels of disclosure and information asymmetry. However, the evidence so far is mixed.

Theoretically, it is not clear whether more disclosure can reduce information asymmetry. Some analytical literature shows that higher levels of disclosure can reduce information asymmetry by providing investors with equal access to information. For example, Diamond (1985) shows that releasing public information of sufficient precision will reduce private information acquisition and make traders' beliefs more homogeneous, thereby reducing information asymmetry among investors. However, this conclusion may be based on two key assumptions – the simultaneity of public and private signals and the homogeneity of traders. After relaxing these assumptions, some other analytical studies find that more public disclosure may even increase the information gap between sophisticated and unsophisticated investors.

For example, instead of assuming traders access public disclosure and private information simultaneously, McNichols and Trueman (1994) allow for private information acquisition before public disclosure and find that disclosure will stimulate sophisticated investors' investment in private information acquisition, thereby increasing the information asymmetry. Under the assumption of complementary private signals, Lundholm (1991) argues that an increase in public

disclosure can make a private signal more valuable to investors who own private information (sophisticated investors) than those who don't (unsophisticated investors), resulting in sophisticated investors possessing more information and widening the information gap between investors.¹² Similarly, rather than assume all traders get the same information from public disclosure instantaneously at the announcement date, Kim and Verrecchia (1994) assume that sophisticated investors have an advantage in processing public information in a short period of time. Therefore, they claim that disclosure events such as EAs can temporarily increase information asymmetry because sophisticated investors can generate private information from their information processing advantage.¹³ This argument is also supported by Blankespoor et al. (2020), who emphasize the existence of disclosure processing costs and argue that “*disclosures are not ‘public’ information as traditionally defined, but instead can be a form of costly private information.*”

Moreover, previous theoretical literature suggests that it is critical to consider the potential effect of firms' public disclosure on other sources of information. As Bushman (1991) points out, financial intermediaries (i.e., financial analysts and institutional investors) play important roles in this context. The same disclosure policy may have substantially different effects on information asymmetry among firms with different information market structures.

¹² There are two factors that determine the information value of a private signal to investors. On the one hand, as the level of information increases, the returns earned from additional information decrease, so a private signal is more valuable to unsophisticated investors because their level of information is on average relatively low compared to that of sophisticated investors. On the other hand, because of the complementarity assumption, private signals are more valuable together than apart. Therefore, a private signal is of more value to sophisticated investors who in general receive relatively more private information than unsophisticated investors. A sufficient increase in public disclosure will reduce the first factor but not the second one, thereby making a private signal more valuable to sophisticated investors and encouraging their private information acquisition.

¹³ However, they also mention that public disclosure may decrease the information asymmetry at announcement if the disclosed information has been known by sophisticated investors. In this case, sophisticated investors generate no additional private information from the public disclosure and temporary information asymmetry will decrease because the disclosure gives small investors access to the information which was held by sophisticated investors before the announcement.

Gigler and Hemmer (1998) also indicate that an increase in one type of disclosure may reduce firms' other types of disclosure. To summarize, the theoretical literature provides different views on the relationship between higher levels of disclosure and information asymmetry and has critical implications for empirical studies as follows.

First, consistent with McNichols and Trueman's (1994) theory, both Botosan and Plumlee (2002) and Brown and Hillegeist (2007) find a negative relationship between AIMR *annual* report scores and the cost of capital, and the probability of informed trade (PIN), respectively, but they find opposite results when using AIMR *quarterly* scores. They explain the contradiction by stating that more frequent disclosures may encourage private information searching, thereby increasing stock price volatility and information asymmetry. Similarly, Van Buskirk (2012) finds that quarterly EAs with more word counts are significantly negatively (positively) associated with firms' quarterly average bid-ask spreads (quoted depth). In contrast, he finds a significant positive (insignificant) relationship between the increased frequency of monthly sales reports and quarterly average bid-ask spreads (quoted depth). He interprets the mixed results by arguing that disclosure quantity and disclosure frequency are two distinct disclosure attributes, and more frequent disclosure provides an incentive for private information searching by sophisticated investors. In addition, Francis et al. (2008) document that higher levels of disclosure are associated with lower costs of capital in the setting of annual reports. However, they find insignificant or opposite results in the setting of management forecasts, conference calls, and press releases. Following Gigler and Hemmer's (1998) argument, they suggest that the inconsistency could be due to the substitutive relationship between different types of disclosure. Taken together, the mixed findings above suggest that different disclosure events and disclosure attributes may play different roles in affecting information asymmetry.

Thus, what has been found in foreign listers' annual report (20-Fs) setting may not be generalized to the quarterly EA (6-Ks) setting.

Second, following Kim and Verrecchia's (1994) idea about sophisticated investors having a temporary advantage over unsophisticated investors when processing information that is new to both types of investors, prior empirical studies generally find that EAs and management forecasts increase the bid-ask spreads at the announcement date but decrease the bid-ask spreads in a short window following the announcement date (Amiram et al., 2016; Collier & Yohn, 1997; Lee et al., 1993; Stoumbos, 2022; Yohn, 1998). However, Kim and Verrecchia's (1994) theory also suggests a second mechanism, which is that if the public disclosure mainly provides information that is only new to unsophisticated investors but has been known by sophisticated investors, it can reduce information asymmetry at the announcement date by giving unsophisticated investors equal access to information. To the best of my knowledge, the only empirical evidence supporting this mechanism is provided by Amiram et al. (2016), who document a significantly increase (decrease) in bid-ask spreads (quoted depth) at the announcement date of analyst forecasts. They explain this result by emphasizing that unlike firm-issued disclosure (i.e., EAs and management forecasts), analyst forecasts are more likely to mainly contain information that is only new to unsophisticated investors because financial analysts and sophisticated investors tend to share similar resources and sets of information. Taken together, the mixed findings above suggest that the direction of the impact of public disclosure on information asymmetry among shareholders at the announcement date is determined by how the information in the public disclosure relates to the information held by sophisticated and unsophisticated investors prior to the announcement date. Given the unique institutional features of foreign listers, which potentially provide greater opportunities for

sophisticated investors to have an information advantage over unsophisticated investors before EAs, investigating whether and how foreign listers' EAs affect announcement-date bid-ask spreads differently from those of domestic listers may provide additional empirical evidence on the second mechanism in Kim and Verrecchia's (1994) theory.

Finally, supporting Bushman's (1991) view, prior empirical studies suggest that the relationship between disclosure and information asymmetry can be influenced by the level of information intermediaries. For example, Botosan (1997) finds a significant relationship between disclosure and cost of capital for firms with low analyst following but not for those with high analyst following. In addition, Bushee et al. (2010) document that greater coverage of business press is associated with significantly lower abnormal bid-ask spreads and higher abnormal quoted depth on the EA dates. As a result, the informational effects of foreign listers' EAs may be different from those of domestic listers and among themselves because of the significant differences in their information environment.

2.4 The Disclosure and the Information Environments of Foreign Listers

One major benefit for foreign firms to cross-list in the U.S. is that they enjoy higher firm values than peer firms listed in their home markets (Doidge et al., 2004). According to the bonding hypothesis, the cross-listing premium stems from the more stringent disclosure requirement and better investor protection environment of the U.S. capital markets. Supporting this argument, empirical studies generally find that foreign firms that cross-listed in the U.S. have higher-quality earnings and better information environments. For example, Lang, Raedy, and Yetman (2006) find that cross-listed foreign firms have less earnings management behaviour, recognize losses in a more timely manner, and have a stronger price-earnings association than peer firms listed in their home markets. Lang, Lins, and Miller (2003) find that

cross-listed firms have higher analyst coverage and analyst forecast accuracy after cross-listing than before cross-listing, and relative to peer firms listed in their home markets.

Although the empirical evidence above suggests that cross-listing in U.S. capital markets improves foreign firms' disclosure quality and their information environment, we cannot simply assume that the disclosure quality and the information environment of these foreign listers are comparable to those of domestic U.S. firms. Firstly, the disclosure requirements of foreign listers are generally less stringent than those of domestic U.S. listers. Secondly, as Lang, Raedy, and Wilson (2006) mentioned, although cross-listed foreign firms are under the same de jure regulation and security laws as U.S. firms, the SEC in practice faces difficulties when pursuing claims against foreign listers.

The empirical evidence on whether the disclosure quality of foreign listers is comparable to that of domestic listers in the prior literature is mixed. On the one hand, some studies find that foreign listers have lower-quality disclosures than U.S. listers. For example, Lang, Raedy, and Wilson (2006) find that foreign listers have more earnings management, recognize losses in a less timely manner, and have lower price-earnings associations relative to comparable U.S. firms, especially for those whose home country has weaker investor protection. In their study of the voluntary disclosure practices of foreign listers in the U.S., Hope et al. (2013) find that foreign listers generally issue less, and lower-quality, earnings guidance than domestic listers. Burnett et al. (2017) examine how the market reacts to the change in foreign listers' Foreign Private Issuer (FPI) status.¹⁴ They find a positive (negative) three-day cumulative abnormal return associated with the announcement of firms losing (gaining) FPI status, suggesting that

¹⁴ In their sample, there are 137 (69) foreign firms that lose (gain) the FPI status between 2000 and 2015. Foreign listers have the choice to file using 6-K/20-F/40-F if they are qualified as FPI. If they lose this qualification, they have to file using 8-K/10-Q/10-K as domestic U.S. firms.

investors expect disclosures under U.S. domestic reporting requirements to be of higher quality than those mandated for FPIs.

On the other hand, some empirical evidence indicates that the disclosure quality of foreign listers is comparable to, or even higher than, that of U.S. firms. For example, Chiu and Lee (2013) find no difference in earnings management or the value relevance of accounting information of cross-listed foreign firms reporting using IFRS versus that of U.S. firms reporting using U.S. GAAP after the SEC's elimination of IFRS firms' 20-F reconciliation requirement in 2007. Lundholm et al. (2014) find that, compared to their domestic U.S. counterparts, 6-K foreign listers in the U.S. market present more numeric information and have similar or more readable texts in their fourth quarter earnings announcements and in the MD&A section of their annual filings. Similarly, Henry et al. (2021) document that foreign listers tend to use a more conservative tone and disclose more forward-looking information in their fourth quarter EAs than domestic firms. In addition, these textual features of foreign listers' EAs are in general associated with greater market reactions to the EAs and greater predictive power of firms' future ROA than that of domestic firms. Overall, the evidence related to differential disclosure quality for foreign-listers in the U.S. market compared to that of domestic firms is mixed, and warrants further investigation. My study contributes to this line of literature by showing that foreign EAs have a greater effect than domestic EAs in reducing bid-ask spreads, both in a short window surrounding the announcement date and over a longer term after the announcement. This finding is consistent with the findings of Lundholm et al. (2014) and Henry et al. (2021), suggesting that foreign EAs are of higher informational value to unsophisticated investors compared to domestic EAs.

With respect to the information environment, prior empirical studies generally suggest that foreign listers in the U.S. market possess a poorer information environment than U.S. firms. For example, Bradshaw et al. (2004) argue that foreign listers in general provide insufficient and less timely information than U.S. listers. Aggarwal et al. (2012) document that foreign listers have significantly less news and fewer business publications, press releases, and conference calls than U.S. listers. In addition, based on their summary statistics, they find that the average institutional ownership and number of analysts following foreign listers is much lower than that of U.S. listers reported by other studies. Furthermore, previous literature notes that higher levels of disclosure can have greater economic benefits (i.e., reducing costs of capital, attracting analysts and institutional investors), especially for those firms in poorer information environments (Aggarwal et al., 2012; Lang et al., 2003; Leuz & Verrecchia, 2000). In my context, the above empirical evidence implies that the EAs of foreign listers, especially those of foreign listers in poor information environments, may have greater effects in reducing information asymmetry than the EAs of domestic listers or the EAs of foreign listers in better information environments.

2.5 Textual Analysis Literature on Levels of Disclosure

With the developments in computational linguistics, text mining, and machine learning techniques, and with the availability of online SEC filings, news articles and conference calls, textual analysis research has become a growing area in accounting and finance in recent decades (Li, 2010; Loughran & McDonald, 2016). According to Li (2010), the textual analysis literature has been mainly interested in three disclosure characteristics: the amount (levels) of disclosure, the tone, and the transparency/readability. The following review focuses on the textual analysis studies about the amount (levels) of disclosure, which is the most relevant to my dissertation.

The length/word counts of the disclosure and the size of the file are two common proxies used by this stream of textual analysis literature. However, as Li (2010) points out, these papers often interpret it as a measure of complexity rather than levels of disclosure. For example, Li (2008) finds that longer annual reports are associated with lower current earnings, more persistent losses, and less persistent profits, indicating that managers may use long reports to hide bad news from investors. You and Zhang (2009) document that there are greater post-earnings announcement drifts following longer 10-K filings, which suggests that investors' underreaction is stronger when processing more complex 10-Ks. Miller (2010) finds that longer 10-K filings are associated with lower trading volume, and the effect is more pronounced among smaller investors, suggesting that more complex filings may be too costly for small investors to process in a short window. Similarly, using the log of 10-K file size, Loughran and McDonald (2014) document that larger 10-K filing sizes are associated with greater abnormal return volatility, higher unexpected earnings and greater analyst forecast dispersion, and the authors suggest that the SEC should consider the information overloading costs of firms' exhaustive disclosure.

However, there exists some evidence showing that longer disclosure is more informative and increases disclosure transparency. For example, Leuz and Schrand (2009) find that firms issue longer annual reports (10-K filings) and more interim reports (8-K filings) in response to the Enron scandal, and the increased levels of disclosure are associated with lower costs of capital. This evidence is consistent with Li's (2010) argument that the length/file size of disclosures is likely to capture both the levels of disclosure and the complexity. In addition, as Loughran and McDonald (2016) emphasize, the length and the file size of disclosures may not be good measures of disclosure complexity when investigating shorter documents such as 8-K

filings, press releases and earnings conference calls. The empirical evidence also supports this argument. For example, Francis et al. (2002) find that a greater amount of information disclosed in the EAs is associated with an increase in investor responses to the EAs. Similarly, Demers et al. (2019) document that EAs with larger file sizes and containing more numerical terms are associated with greater market reactions on the EA date. Van Buskirk (2012) also finds that longer EAs are associated with reduced post-EA information asymmetry. In summary, these EA textual studies suggest that unlike longer 10-Ks increasing the complexity and reducing the readability, longer EAs can be more informative to the investors.

The burgeoning literature in textual analysis focuses more on the U.S. firms' disclosure and the empirical evidence on foreign firms' textual disclosure, especially disclosures other than annual reports, is relatively limited. Being the first to examine the textual attributes of annual reports for a large sample of foreign firms, Lang and Stice-Lawrence (2015) document that the length of foreign firms' annual reports has increased substantially over time and is associated with higher liquidity, higher institutional ownership and analyst following. Using a sample of foreign firms listed in the U.S. market, Lundholm et al. (2014) document that longer management discussion and analysis (MD&A) sections in their annual reports are associated with lower institutional ownership. On the contrary, they find that longer earnings press releases of foreign listers are associated with greater institutional ownership. In addition, they find the association between the count of numbers in foreign listers' 20-F MD&A section and institutional ownership becomes significantly positive when eliminating those foreign listers that report too many numbers (top 25 percentile). Furthermore, Henry et al. (2021) document that foreign listers' EAs with more forward-looking information are generally associated with greater market reactions and greater predictive power of firms' future ROA. Taken together, the

empirical evidence for foreign firms also suggests that longer disclosure may actually increase transparency in the long run by providing a greater amount of information to investors, especially for shorter reports such as EAs. However, the shorter-term effect of higher levels of disclosure in foreign listers' EAs remains uncertain and warrants further investigation.

2.6 Conclusion

In summary, this chapter introduces the institutional background of U.S.-listed foreign firms and highlights the fact that although listed in the same markets, foreign listers are under substantially different regulations and requirements compared to domestic firms. Therefore, the information environment of these foreign listers can be very different from their domestic counterparts. In addition, this chapter reviews three streams of relevant literature. Since the previous literature shows that the effect of disclosure on information asymmetry can largely depend on the information environment, this dissertation contributes to the literature by examining the impact of foreign listers' EAs on bid-ask spreads and comparing whether and how this impact is different from that of domestic listers' EAs. In addition, due to the special institutional features of foreign listers' 6-K filings, the textual features of foreign listers' disclosure other than annual reports are generally understudied. This dissertation fills this gap by investigating how the textual features of foreign listers' EAs are associated with the impact of their EAs on the bid-ask spreads.

CHAPTER 3

Foreign Listers' EAs and Bid-ask Spreads Surrounding the EAs

3.1 Hypotheses Development (Hypotheses 1-2)

3.1.1 Introduction

In Section 3.1, I develop the first two sets of hypotheses. In Section 3.1.2, I discuss whether and how foreign listers' EAs affect information asymmetry on the EA date differently from those of domestic listers. I argue that due to the more lenient disclosure requirements and the relatively weaker information environment of foreign listers, foreign listers' EAs are likely to contain relatively more information that is new to unsophisticated investors but is known to sophisticated investors before the EAs than domestic listers. I develop hypothesis H1 based on this discussion, expecting that foreign listers have a higher bid-ask spread spike at announcement than domestic listers. I further develop H1a – H1e to test how the impact differs among foreign listers with different home-country regulatory characteristics, financial intermediary features, and disclosure choices that are likely to be related to their information environment. Section 3.1.3 presents hypothesis H2 to test whether foreign listers' EAs have different effects on post-EA bid-ask spreads from domestic listers' EAs. I further develop H2a – H2e to explore whether the effects on post-EA bid-ask spreads differ among foreign listers with different home-country requirements, regulatory characteristics, financial intermediary features, and disclosure choices.

3.1.2 The Effects of EAs on Bid-ask Spreads at Announcement

Based on Kim and Verrecchia's (1994) theory, a disclosure potentially contains two types of information: (1) information that is new to both sophisticated investors and unsophisticated investors, and (2) information that is new to the unsophisticated investors, but that is known privately by the sophisticated investors. The net effect of public disclosure on information

asymmetry in a short window around the announcement date depends on which type of information dominates. If the disclosure mainly contains the first type of information, the information asymmetry among shareholders will increase at the announcement date. The reason is that sophisticated investors have information processing advantages that enable them to assimilate the disclosed information more quickly than unsophisticated investors. On the other hand, if the disclosure mainly contains the second type of information, the information asymmetry among shareholders will decrease at the announcement date. This is because unsophisticated investors will learn new information from the disclosure, whereas sophisticated investors will not, so public disclosure will reduce the existing information gap. Therefore, as Amiram et al. (2016) emphasize, whether a public release increases or decreases the information asymmetry at the announcement date depends on how the information disclosed in that release relates to the information held by sophisticated and unsophisticated investors prior to the announcement. Relying on this theory, previous domestic empirical studies have documented a temporary increase in bid-ask spreads (a spread spike) at announcement, supporting the notion that domestic firms' EAs mainly provide information that is new to both sophisticated and unsophisticated investors (Amiram et al., 2016; Coller & Yohn, 1997; Lee et al., 1993; Stoumbos, 2022; Yohn, 1998).

Unlike domestic firms, foreign firms listed in U.S. markets are from countries that may be different from the U.S. with respect to reporting requirements, legal environment, official language, and culture. Although they are all under the same de jure U.S. regulations and securities laws, it is suggested that the home-country reporting requirements and legal environments of US-listed foreign firms still significantly influence their information environment and disclosure practices (Aggarwal et al., 2012; Boone et al., 2021). Therefore, U.S.

investors, especially unsophisticated investors, are expected to face greater information and language barriers when gathering information about foreign listers than domestic ones. In addition, foreign listers in U.S. markets are exempt from Reg FD, which makes unsophisticated investors more likely to be relatively less informed prior to the public disclosure events. One example of this arises where the foreign lister discloses certain information about quarterly earnings in its home country using languages other than English. The U.S. sophisticated investors may be able to gather and process this information using their professional competencies. However, because of the language and information barriers and the fact that foreign listers are exempt from Reg FD, the U.S. unsophisticated investors may not be able to get access to, or process, the information until the foreign listers announce earnings at some later date in the US market.¹⁵ Furthermore, some foreign listers are based in countries located in a different time zone. Some of these firms choose to announce their earnings during the daytime in their home country, which often falls during after-market hours in the U.S. As a result, unsophisticated investors, who usually have more limited time and resources, may not be able to respond to these after-market disclosures as promptly as sophisticated investors, placing them at a further disadvantage.¹⁶

Taken together, the information gap between sophisticated and unsophisticated investors prior to a foreign lister's EA is likely to be larger than the gap before the EA of a comparable

¹⁵ The author is not arguing that this is the only circumstance leading to greater information gaps between investors in foreign listers. Instead, the author posits that this is an example that could manifest given the foreign listers' more lenient disclosure regulations and their exemption from Reg FD. In addition, sophisticated investors, similar to analysts, can have advantages in gathering non-material pieces of information from various sources – each of which may not trigger a violation of Reg FD – and aggregating these fragments to form a material conclusion.

¹⁶ For example, IT Tech Packaging Inc. (ITP), a Chinese manufacturing company listed on the Nasdaq, announced its 2024 first quarter financial results at 10:22 p.m. EDT on May 10, 2024 based on the earnings calendar on the Nasdaq website. More detailed information is available at: <https://www.nasdaq.com/press-release/it-tech-packaging-inc.-announces-first-quarter-2024-unaudited-financial-results-2024>

domestic lister. Therefore, using a matched pair design, I expect that foreign listers' EAs contain a *relatively* higher proportion of information that is already known by sophisticated investors, but that is new to unsophisticated investors, compared to the EAs of domestic listers. Following the prior literature that uses bid-ask spreads as a proxy for information asymmetry, this leads to the first hypothesis:

H1: The bid-ask spread spike at announcement is lower for foreign listers than for comparable domestic listers.¹⁷

To support the argument that it is the greater information gap between sophisticated investors and unsophisticated investors prior to the EAs that leads to the lower spread spike at announcement for foreign listers, I conduct a within-foreign lister test and a full sample test to further investigate several features that may relate to foreign listers' pre-announcement information environments. These include foreign listers' home-country regulatory characteristics, financial intermediary features, and disclosure choices. First, foreign listers from countries with weaker reporting requirements and investor protections have weaker information environments in general (Aggarwal et al., 2012). Therefore, these firms are more likely to have a higher information gap between sophisticated and unsophisticated investors prior to the EAs. According to Kim and Verrecchia's (1994) theory, the EAs of foreign listers that are from countries with more lenient reporting requirements and weaker investor protections are more likely to contain a *relatively* higher proportion of information that is only new to unsophisticated

¹⁷ The author is not arguing that the information that is only new to unsophisticated investors is the dominant type of information in foreign listers' EAs. Instead, the author posits that this type of information is more likely to account for a *relatively* higher proportion in foreign listers' EAs than domestic listers' EAs, leading to a lower spike at announcement. It remains an empirical question whether the information in foreign listers' EAs that is new to both sophisticated and unsophisticated investors is the dominant type (thereby leading to *an increase in bid-ask spreads* at announcement) or the information only new to unsophisticated investors is the dominant type (thereby leading to *a decrease in bid-ask spreads* at announcement). I explore this question in Section 4 and the result are presented in Table 4 Column (1).

investors. Therefore, the bid-ask spread spike at announcement for these foreign listers is expected to be lower than that of other foreign listers, leading to the following hypothesis:

H1a: The bid-ask spread spike at announcement is lower for foreign listers from countries with lower reporting requirements and weaker investor protection than for foreign listers from countries with higher reporting requirements and stronger investor protection.

In addition, as Bushman (1991) points out, financial intermediaries play important roles in affecting firms' information environments. For example, in the U.S. setting, Yohn (1998) finds that firms followed by fewer analysts have higher average spreads before the EAs than firms with greater levels of analyst following. Given that firms with lower levels of analyst following tend to have a less rich information environment, the EAs of these firms are expected to contain a *relatively* higher proportion of information that is only new to unsophisticated investors. Therefore, the bid-ask spread spike at announcement for foreign listers followed by fewer analysts is expected to be lower, leading to the following hypothesis:

H1b: The bid-ask spread spike at announcement is lower for foreign listers with lower levels of analyst following than for foreign listers with higher levels of analyst following.

Similar to analysts, institutional owners also have a significant impact on shaping firms' information environment. For example, in the U.S. setting, Boone and White (2015) find that higher institutional ownership is associated with greater management disclosure, higher levels of analyst following, and lower bid-ask spreads. In the foreign lister setting, Lundholm et al. (2014) document that higher levels of institutional ownership and analyst following are associated with more readable earnings releases and annual reports. Therefore, foreign listers with lower levels of institutional ownership are expected to have a less rich information environment, and their

EAs are expected to consist of a *relatively* larger share of information that is only new to unsophisticated investors, leading to the following hypothesis:

H1c: The bid-ask spread spike at announcement is lower for foreign listers with lower levels of institutional ownership than for foreign listers with higher levels of institutional ownership.

Lastly, previous literature documents that less timely reporting is associated with greater average bid-ask spreads (Arif et al., 2019; Cho et al., 2022; Johnson & So, 2018). According to these studies, the longer the time lag between a firm's fiscal quarter-end and its EA date, the more likely it is that sophisticated investors are able to gather more private information and widen the information gap before the EAs. In addition, previous studies find that higher reporting frequency reduces bid-ask spreads and cost of equity (Cuijpers & Peek, 2010; Fu et al., 2012; Stoumbos, 2022). Specifically, using European market data, Stoumbos (2022) suggests that more frequent EAs reduce the available time for inter-announcement information asymmetry growth, thereby reducing the pre-EA bid-ask spreads. Therefore, foreign listers with longer EA lags and with less frequent earnings updates are expected to have a less rich information environment. According to Kim and Verrecchia's (1994) theory, the EAs of these firms are expected to contain a *relatively* higher proportion of information that is only new to unsophisticated investors, leading to a lower spread spike at announcement:

H1d: The bid-ask spread spike at announcement is lower for foreign listers with longer EA lags than for foreign listers with shorter EA lags.

H1e: The bid-ask spread spike at announcement is lower for foreign listers providing EAs on a less frequent basis than for foreign listers providing EAs on a more frequent basis.

3.1.3 The Effects of EAs on Bid-ask Spreads After the EA Date

Next, I investigate how EAs differentially affect the bid-ask spreads of foreign listers versus domestic listers over a short period subsequent to the announcement. The effect of EAs on post-announcement bid-ask spreads can differ from the effect on bid-ask spreads at announcement because, as Kim and Verrecchia (1994) emphasize, the advantage of sophisticated investors in processing new information may be temporary, and the span of time over which this advantage remains is an empirical issue. Other analytical literature also suggests that disclosure reduces information asymmetry and improves market liquidity. For example, Diamond (1985) shows that releasing public information of sufficient precision will reduce private information acquisition and make traders' beliefs more homogeneous, thereby reducing information asymmetry among investors. Goldstein and Yang (2017) show that disclosure provides more precise public information, thereby reducing the uncertainty about the assets' value. As a result, information asymmetry decreases and liquidity is improved. Extant empirical evidence related to U.S. domestic firms supports this argument by showing that the bid-ask spread spike is within the [-1, +1] EA window, and that the spreads drop below the pre-EA level shortly after the EAs (Amiram et al., 2016; Coller & Yohn, 1997; Lee et al., 1993; Stoumbos, 2022; Yohn, 1998). In other words, although unsophisticated investors are subject to greater information overload effects at announcement, they may ultimately benefit more from the disclosure shortly after the announcement as they have time to process the information that is revealed to the public.

Prior literature recognizes that the information environment of domestic listers in the U.S. market may be too rich for public disclosure to have a significant informational impact (Aggarwal et al., 2012; Gietzmann & Ireland, 2005; Leuz & Verrecchia, 2000; Verrecchia, 2001). On the other hand, the EAs of foreign listers are likely to be of higher information value

because U.S. investors are likely to have limited access to information about these foreign firms beyond their public disclosures. Hence, using a matched pair design, I expect foreign listers' EAs to have a greater effect in reducing bid-ask spreads in the post-EA period relative to the pre-EA period than the EAs of comparable domestic listers. Therefore, my second hypothesis is as follows:

H2: The decrease in bid-ask spreads in the post-announcement period relative to the pre-announcement period is greater for foreign listers than for comparable domestic listers.

However, this hypothesis is not without tension. As Hirshleifer (2001) states, because of constrained cognitive resources, investors may only pay attention to subsets of information that are more readily available or information with which they are more familiar. U.S. investors are likely to be less familiar with foreign listers, resulting in slower assimilation of new information disclosed in their EAs. In addition, previous literature suggests that unsophisticated investors exhibit stronger home bias than sophisticated investors (Grinblatt & Keloharju, 2002; Massa & Simonov, 2006; Roque & Cortez, 2014). Hence, unsophisticated investors are expected to be more vulnerable to the information overloading effect and may need more time to digest the new information disclosed in foreign listers' EAs. As a result, a greater decrease in bid-ask spreads within a short period (i.e., ten days) after the EA dates for foreign listers than domestic listers may not be discernible.

I further conjecture that foreign listers' home-country regulatory characteristics, their financial intermediary features, and their disclosure choices can also affect the decrease in bid-ask spreads in the post-announcement period relative to the pre-announcement period. First, since foreign listers from countries with weaker reporting requirements and investor protections have weaker information environments in general (Aggarwal et al., 2012), I expect that the EAs

of these foreign firms are a more important channel for U.S. investors to access new information, leading to the following hypothesis:

H2a: The decrease in bid-ask spreads in the post-announcement period relative to the pre-announcement period is greater for foreign listers from countries with lower reporting requirements and weaker investor protection than for foreign listers from countries with higher reporting requirements and stronger investor protection.

Similarly, as discussed in H1b and H1c, firms followed by fewer analysts and firms with lower levels of institutional ownership are also likely to have weaker information environments (Boone & White, 2015; Yohn, 1998). Therefore, the investors in these foreign firms are likely to rely more on firm-issued public disclosures, such as EAs, to gather information. As a result, the EAs of foreign listers followed by fewer analysts and firms with lower levels of institutional ownership are expected to have greater effects in reducing bid-ask spreads:

H2b: The decrease in bid-ask spreads in the post-announcement period relative to the pre-announcement period is greater for foreign listers with lower levels of analyst following than for foreign listers with higher levels of analyst following.

H2c: The decrease in bid-ask spreads in the post-announcement period relative to the pre-announcement period is greater for foreign listers with lower levels of institutional ownership than for foreign listers with higher levels of institutional ownership.

Lastly, as mentioned in H1d and H1e, firms that update their earnings on a less timely and less frequent basis are likely to have less rich information environments (Arif et al., 2019; Stoumbos, 2022). Therefore, I expect that foreign listers with less timely and less frequent earnings updates release *relatively* more new information to the unsophisticated investors in their

EAs, thereby having a greater effect in reducing bid-ask spreads in the post-announcement periods:

H2d: The decrease in bid-ask spreads in the post-announcement period relative to the pre-announcement period is greater for foreign listers with longer EA lags than for foreign listers with shorter EA lags.

H2e: The decrease in bid-ask spreads in the post-announcement period relative to the pre-announcement period is greater for foreign listers updating EAs on a less frequent basis than for foreign listers updating EAs on a more frequent basis.

3.1.4 Conclusion

In Section 3.1, I posit two sets of hypotheses to be tested in my empirical analyses. I present my first hypothesis in support of foreign listers having a lower spike of bid-ask spreads at announcement than domestic listers. Next, I present my second hypothesis in support of foreign listers having a greater decrease in bid-ask spreads after the EAs than domestic listers. In addition, I present five sub-hypotheses to test the cross-sectional features that may affect the effect of foreign listers' EAs on bid-ask spreads surrounding the EA date under my first and second hypotheses.

3.2 Data and Research Design

3.2.1 Introduction

Section 3.2 describes my data and research design for the hypotheses developed in Section 3.1. The section begins by introducing my empirical measures of information asymmetry and other control variables in Section 3.2.2. Section 3.2.3 presents the regression models. I

describe my sample selection process in Section 3.2.4 and conclude with a summary in Section 3.2.5.

3.2.2 Measures of Information Asymmetry and Control Variables

I follow the extant literature and use bid-ask spread as my primary dependent variable (Barth et al., 2017; Coller & Yohn, 1997; Fu et al., 2012; Kanagaretnam et al., 2007; Leuz & Verrecchia, 2000; Yohn, 1998).¹⁸ Specifically, I use the CRSP daily closing ask price minus the bid price scaled by the midpoint to measure bid-ask spread. This method has been proven to yield a satisfactory approximation of the common TAQ-based bid-ask spread in cross-sectional settings by Chung and Zhang (2014) and many previous studies have used this method to measure bid-ask spread (Barth et al., 2017; Bentley-Goode et al., 2019; Diaz et al., 2020; Guo et al., 2004). Because the distribution of raw bid-ask spreads is highly right-skewed, I use the log value of the bid-ask spreads as my main dependent variable to reduce the skewness following Abdi and Ranaldo (2017) and Stoumbos (2022).¹⁹

To control for the non-information asymmetry portion of the spread, I include the following variables in the regression, following the previous literature (Amiram et al., 2016; Bushee et al., 2010; Coller & Yohn, 1997; Krinsky & Lee, 1996; Stoumbos, 2022; Yohn, 1998). First, I use daily stock price (*Price*), daily turnover ratio (*Turnover*), firm size (*TotalAssets*), prior-quarter return volatility (*PriorQuarterVolatility*), and prior-quarter turnover ratio (*PriorQuarterTurnover*) to control for the processing costs and inventory risks of market

¹⁸ Yohn (1998), Amiram et al. (2016) and Stoumbos (2022) all use bid-ask spread as a proxy for information asymmetry. The intuition is that the market maker will set a wider bid-ask spread to protect herself when there is greater possibility for trading with sophisticated traders.

¹⁹ In accounting research, bid-ask spread measure is often used in the non-logarithmic form. Robustness tests using the non-logarithmic value of bid-ask spread indicate that the main results reported below generally remain the same.

markers (Demsetz, 1968; Stoll, 1978).²⁰ In addition, previous literature, such as Bushman (1991) and Botosan (1997), suggests that it is important to consider information intermediaries and the structure of the private information market. Therefore, I also include institutional ownership (*InstitutionalOwnership*) and analyst following (*AnalystFollowing*) as control variables. In addition, I use the absolute value of the earnings surprise (*absSUE*) and absolute abnormal return (*AbsAbret*) to control for the information content of the EAs following Bushee et al. (2010).²¹ Furthermore, previous literature documents that disclosure frequency can influence firms' information asymmetry (Fu et al., 2012; Stoumbos, 2022; Van Buskirk, 2012). Considering my foreign lister sample may exhibit some variations in their EA frequency, I include the frequency of EAs in the same fiscal year (*EAFreq*) to control for the disclosure frequency effect.²² Finally, I include year fixed effects to control for unobservable macro changes over time.²³

I further investigate several features that may be associated with foreign listers' greater bid-ask spreads prior to the EAs. Following Boone et al. (2021), I use the reporting index published by the World Economic Forum (*ReportingRequirement*) to measure the strength of

²⁰ *Turnover* (daily trading share volume divided by the total share) is included as a control variable to measure the daily trading activities. The results are robust to using daily trading volume as an alternative control variable.

²¹ I use the seasonal random walk model to measure the earnings surprise following Livnat and Mendenhall (2006). The reason for not using analyst forecast earnings surprise is that a large number of foreign listers do not have analyst following (nor are they covered by I/B/E/S), resulting in an unacceptable loss of observations. Bushee et al. (2010) also calculate the earnings surprise using the seasonal random walk model for 38% of firms in their sample because they are not covered by I/B/E/S or First Call.

²² *EAFreq* is calculated as the count of EAs in one year preceding the current announcement. The results are robust to using the count of EAs in the current fiscal year as an alternative measure. I also construct another alternative measure of EA frequency following Stoumbos (2022). Following his definition, if a company reports twice in a fiscal year and is missing Q1 and Q3, then it is categorized as a semi-annual reporter. If a company reports once for Q4 in a fiscal year, it is categorized as an annual reporter. The results are robust to using Stoumbos' (2022) measure of EA frequency if using one-tailed t tests. However, the results are insignificant if using two-tailed t tests with P values close to 0.1.

²³ I include year fixed effect and clustered standard errors by firm following Amiram et al. (2016) p.128 Table 2 Column (1). The results reported in Table 4 are robust to using other alternative specifications, such using quarter fixed effects instead of year fixed effects, or including both year fixed effects and industry fixed effects in the regression.

auditing and reporting standards of foreign listers' home markets.²⁴ I also use the investor protection index published by the World Economic Forum (*InvestorProtect*) to measure the judicial efficiency of listers' home countries. In addition, I use the count of analysts following the firm (*AnalystFollowing*) and the percentage of outstanding shares owned by institutional investors (*InstitutionalOwnership*) to measure the extent of firms' financial intermediaries. Finally, I use the day count between fiscal quarter-end and EA date (*EALag*) to measure the timeliness of EAs and use the count of EAs in one year preceding the current announcement (*EAFreq*) to measure the frequency of EAs.

3.2.3 Regression Models for Testing Hypotheses H1 and H2

To test the effect of EAs on bid-ask spreads, I examine the change in daily bid-ask spreads at announcement compared to the daily spreads prior to the EA date following the previous literature (Amiram et al., 2016; Stoumbos, 2022; Yohn, 1998). Specifically, I include bid-ask spreads for all days in the [-10, +1] window around the EA date following Yohn's (1998) model.²⁵ To explore whether the foreign listers and domestic listers in my sample also experience a spread spike in the [-1, +1] EA window, as shown in previous domestic literature, I run a baseline regression using *Equation (1.0)* within the foreign-lister subsample. For comparative purposes, I also run this model on the domestic-lister subsample. To test whether foreign listers' spread spike at announcement differs from that of domestic listers, I run regressions using *Equation (1.1)* for the full sample.

²⁴ Data is available at <http://reports.weforum.org/global-competitiveness-report-2015-2016/competitiveness-library/ReplIndex> ranges from 1 to 7, with higher scores representing stronger accounting and auditing standards. The index is an annual measure, but the data is only public accessible from 2008 to 2019. Considering that the index is relatively sticky for the sample period before 2008 or after 2019, I use the closest-year index.

²⁵ The previous literature uses different windows surrounding the EA date. I follow Yohn's (1998) model when conducting my main tests. The results are robust to using alternative EA windows, such as [-5, +1] or [-2, +1].

$$\text{LnSpread} = a_0 + a_1EA + \text{Ctrls} + \text{YearFixEf} + \varepsilon \quad (1.0)$$

$$\text{LnSpread} = a_0 + a_1EA + a_2\text{foreign} + a_3\text{foreign} * EA + \text{Ctrls} + \text{YearFixEf} + \varepsilon \quad (1.1)$$

The indicator variable $EA = 1$ if that day is one day before the EA, on the EA date, or one day after the EA (i.e., a 3-day EA window). Because the extant literature has documented an increase in bid-ask spreads at announcement for U.S. firms, I expect $a_1 > 0$. As H1 predicts, if foreign listers have a lower bid-ask spread spike at announcement, I expect $a_3 < 0$.

I further investigate several features that may be associated with foreign listers' greater bid-ask spreads prior to the EAs. For ease of exposition, I multiply *ReportingRequirement*, *InvestorProtect*, *AnalystFollowing*, *InstitutionalOwnership*, and *EAFreq* by -1 , so that higher values of each variable represent foreign listers that are from weaker regulatory regimes, have fewer information intermediaries, and provide less frequent earnings updates, respectively. The measure *Feature* in *Equations 1.2* and *1.3* alternatively represents the variables *ReportingRequire_low*, *InvestorProtect_low*, *AnalystFollow_low*, *InstitutionOwner_low*, *EAlag_long*, and *EAFreq_low*.²⁶ I run the regressions including each measure in turn using *Equation 1.2* for the foreign-lister sample and *Equation 1.3* for the full sample, respectively:²⁷

$$\text{LnSpread} = \alpha_0 + \alpha_1EA + \alpha_2\text{Feature} + \alpha_3\text{Feature} * EA + \text{Ctrls} + \text{YearFixEf} + \varepsilon \quad (1.2)$$

$$\text{LnSpread} = a_0 + a_1EA + a_2\text{foreign} + a_3\text{foreign} * EA + a_4\text{Feature} + a_5\text{Feature} * EA + \text{Ctrls} + \text{YearFixEf} + \varepsilon \quad (1.3)$$

²⁶ The negatively transformed measures are denoted as *ReportingRequire_low*, *InvestorProtect_low*, *AnalystFollow_low*, *InstitutionOwner_low*, and *EAFreq_low*, respectively. Because the higher value of *EAlag* already represents less timely earnings updates, *EAlag* is not negatively transformed (*EAlag* is denoted as *EAlag_long* in the results).

²⁷ Given that some of these measures are highly correlated, I include each variable in turn in separate regressions to avoid potential multicollinearity problems.

As discussed in hypotheses H1a to H1e, foreign firms from weaker regulatory regimes, with lower levels of analyst following and lower institutional ownership, and updating earnings on a less timely or less frequent basis are usually associated with greater information asymmetry prior to their EAs. Therefore, I expect $\alpha_2 > 0$ ($a_4 > 0$) in *Equation 1.2* (*Equation 1.3*). As hypotheses H1a to H1e predict, if the lower spread spike of foreign listers at announcement is related to foreign listers' home-country regulatory characteristics, financial intermediary features, and disclosure choices mentioned before, I expect $\alpha_3 < 0$ ($a_5 < 0$) in *Equation 1.2* (*Equation 1.3*).

Next, to test the effect of EAs on post-EA bid-ask spreads, I include daily bid-ask spreads in the [-10, -2] and [+2, +10] window around the EA date following Yohn's (1998) model. To explore whether the foreign listers and domestic listers in my sample also have a spread decrease shortly after the EA date as shown in previous domestic literature, I run the baseline regression using *Equation (2.0)* within the foreign-lister and domestic-lister subsamples separately. To test whether the decrease in foreign listers' post-EA spreads differs from that of domestic listers, I run regressions using *Equation (2.1)* for the full sample.

$$\text{LnSpread} = b_0 + b_1\text{Post} + \text{Ctrls} + \text{YearFixEf} + \varepsilon \quad (2.0)$$

$$\text{LnSpread} = b_0 + b_1\text{Post} + b_2\text{foreign} + b_3\text{foreign} * \text{Post} + \text{Ctrls} + \text{YearFixEf} + \varepsilon \quad (2.1)$$

The indicator variable $\text{Post}=1$ if that day is in the [+2, +10] window relative to the EA date. As mentioned before, a finding of $b_1 < 0$ supports the argument that the spread spike at announcement is temporary and the spread decreases in a short period after the EA date. Based on H2 that foreign listers have a greater decrease in bid-ask spreads in the post-EA period relative to the pre-EA period than domestic listers, I expect $b_3 < 0$.

To further investigate how foreign listers' home-country regulatory characteristics, information environment features, and disclosure choices affect the decrease in bid-ask spreads in the post-EA period, I include each feature in a separate regression using *Equation 2.2* for the foreign-lister sample and *Equation 2.3* for the full sample, respectively:

$$\text{LnSpread} = \beta_0 + \beta_1 \text{Post} + \beta_2 \text{Feature} + \beta_3 \text{Feature} * \text{Post} + \text{Ctrls} + \text{YearFixEf} + \varepsilon \quad (2.2)$$

$$\text{LnSpread} = b_0 + b_1 \text{Post} + b_2 \text{foreign} + b_3 \text{foreign} * \text{Post} + b_4 \text{Feature} + b_5 \text{Feature} * \text{Post} + \text{Ctrls} + \text{YearFixEf} + \varepsilon \quad (2.3)$$

Based on H2a to H2e that the EAs of foreign listers from weaker regulatory regimes, lacking financial intermediaries, and with less timely and less frequent earnings updates have a greater effect in reducing the spreads in the post-EA period, I expect $\beta_3 < 0$ ($b_5 < 0$) in *Equation 2.2* (*Equation 2.3*).

3.2.4 Sample Selection and Data

Table 1 presents the sample selection process. I begin with all SEC 6-K filers in the SEC Analytics Suite Dataset with effective links to CRSP and Compustat that have announced earnings from 2005 to 2021. I restrict the foreign filers to those listed on one of the three main U.S. exchanges with non-missing earnings, non-negative total assets, and non-negative sales revenue.²⁸ I further require the foreign filers' headquarters to be outside of the U.S. and require these firms to file no 8-Ks, 10-Ks, or 10-Qs during my sample period. The reason for these two requirements is that some foreign filers may move their main business to the U.S., or they no

²⁸ As shown in Table 1, no foreign lister is excluded due to not listing on the three main exchanges. By checking the initial sample, I find that there are no OTC firms (CRSP exchange code variable *exchcd* = 20) at the beginning, which could be due to the requirement that there be effective links with SEC Analytics Suite and Compustat.

longer qualify as FPIs as defined by the SEC. To reduce classification errors and to keep the foreign EA group “foreign,” I exclude these filers and their filings from my sample.²⁹

There are 1,397 foreign listers left in my sample, 58% of which are headquartered in China (308), Canada (285), Israel (123), or the UK (92). See Figure 1 for the distribution of foreign listers’ headquarter countries. Among the 308 firms headquartered in China, 90.6% (279) are incorporated in island countries (i.e., tax havens).³⁰ Over the sample period, the total number of foreign listers decreased during the financial crisis and then steadily increased to greater than the pre-crisis level. While the number of listers from most of the countries mentioned above generally remains at the same level, there is a huge increase in Chinese firms, from 35 (in 2005) to 189 (in 2021). I exclude some foreign firm-quarters for which key regression variables are missing, and I further require my foreign lister sample to have non-missing daily observations in the [-10, +10] EA window following Amiram et al. (2016).³¹ Finally, I match the foreign firm-quarters with comparable domestic firm-quarters on the basis of the sign of the earnings surprise, the calendar quarter to which the EA relates, and the closest market capitalization with a +/- 10% range.³² My final EA sample contains 27,806 foreign-domestic firm-quarter pairs and 1,167,852 daily observations.

²⁹ Some foreign filers may voluntarily opt to file 8-Ks, 10-Ks, and 10-Qs, thereby subjecting themselves to the same stringent reporting requirements as domestic U.S. listers. Considering their disclosures may resemble those of U.S. firms and the challenge of determining whether the change of filing type is mandatory or voluntary, I exclude these filers from my sample. This leads to the exclusion of 107 foreign listers that have filed 8-K, 10-K or 10-Q during my sample period.

³⁰ Many Chinese firms with high market capitalization (> \$1 billion) are incorporated in tax havens, such as Alibaba, JD.com, iQIYI, ZTO express, and Sogou. According to Bloomberg, U.S. investments in Chinese companies occur largely through these offshore vehicles in tax havens.

³¹ Different from Amiram et al. (2016), Stoumbos (2022) does not require non-missing daily observations in the sample selection. All the results reported are robust to using an alternative sample without requiring non-missing daily observations in the [-10, +10] EA window.

³² To address the concern that the results may be driven by a specific method, I adopt several alternative matching approaches including the Propensity Score Matching (PSM) and Entropy Balancing Method (EBM) and the results are discussed in Section 3.4.3.

Table 2 Panel A and Panel B present descriptive statistics for my sample. In general, compared to domestic listers, foreign listers have higher bid-ask spreads and larger earnings surprises.³³ Foreign listers are also followed by fewer analysts and have lower levels of institutional ownership than their domestic counterparts. These findings indicate that foreign listers are likely to have generally weaker information environments than otherwise similarly matched domestic listers.

Table 3 presents the correlation between variables. As expected, *LnSpread* is positively correlated with *EA* and *Foreign*. In addition, *LnSpread* is negatively correlated with firm size, the level of analyst following, and the level of institutional ownership. The signs of the correlations between *LnSpread* and the other control variables are also as expected.

Figure 2 demonstrates that in each calendar quarter, compared to domestic listers, there is a relatively higher percentage of trading occurring in the pre-EA window for foreign listers, especially for those from weaker regulatory regimes. This pattern highlights a greater risk of information leakage prior to the public disclosure event for foreign firms, which is consistent with the expectation and could result in a wider information gap between sophisticated and unsophisticated investors in foreign listers.

3.2.5 Conclusion

Section 3.2 presents the sample selection methods, the measures for information asymmetry and main control variables, and the design of regression models. The results for H1

³³ The average bid-ask spreads of the domestic listers in my sample is approximately 41.23, which is lower than the 86.83 reported by Amiram et al. (2016). When calculating the bid-ask spreads for all domestic firms listed in the U.S. market during my sample period, the average is around 71.03, which is much closer to the number reported by Amiram et al. (2016). Considering foreign listers are in general bigger than the overall U.S. firm population, a possible explanation is that relatively bigger domestic firms are selected into my sample to match foreign listers, leading to a lower spread compared to the general population of U.S. firms.

using *Equation 1.1* will be reported in Section 3.3.2., and the results for H1a – H1e using *Equation 1.2* and *1.3* will be reported in Section 3.3.3. The results for H2 using *Equation 2.1* will be reported in Section 3.3.4., and the results for H2a – H2e using *Equation 2.2* and *2.3* will be reported in Section 3.3.5.

3.3 Empirical Analyses

3.3.1 Introduction

In Section 3.3, I present the regression results of the hypotheses developed in Section 3.1. Section 3.3.2 reports the empirical results about whether and how foreign listers' EAs affect bid-ask spreads on the EA date differently from those of domestic listers, and Section 3.3.3 reports the influences of foreign listers' home-country regulatory characteristics, financial intermediary features, and disclosure choices. Section 3.3.4 reports whether and how foreign listers' EAs affect bid-ask spreads in a short period after the EA date differently from those of domestic listers and Section 3.3.5 reports the influences of foreign listers' home-country regulatory characteristics, financial intermediary features, and disclosure choices. Section 3.3.6 discusses the trading activities surrounding the EAs and the potential implications.

3.3.2 The Effects of EAs on Bid-ask Spreads at Announcement (H1)

Before testing the hypotheses, I first explore whether each of my foreign lister and domestic lister samples respectively have a spread spike at announcement. To do so, I run baseline regressions using daily observations in the [-10, +1] EA window. The indicator variable *EA* is set equal to one for day -1, day 0, and day +1 relative to the EA date (i.e., a 3-day EA window). Table 4 columns (1) and (2) show that each of the foreign lister and domestic lister samples have a significant increase in bid-ask spreads at announcement, a result consistent with previous U.S. empirical evidence (Amiram et al., 2016; Stoumbos, 2022; Yohn, 1998). Based on

Kim and Verrecchia's (1994) theory, this result suggests that both foreign listers' and domestic listers' EAs mainly provide new information to both sophisticated and unsophisticated investors.³⁴ In addition, I perform additional tests for foreign lister and domestic lister samples, respectively, using the daily model as outlined by Amiram et al. (2016). Specifically, Figure 1 of Amiram et al. (2016) documents a bid-ask spread spike during the [-1, +1] EA window and a spread decrease during the [+2, +10] window after the announcement. As shown in Figure 3, my results align with the pattern observed in Figure 1 of Amiram et al. (2016) for both foreign and domestic listers. Additionally, the foreign listers exhibit a higher spike at announcement and a greater decrease after the EA date, consistent with the expectations of H1 and H2.

Table 4 column (3) reports the result from the estimations of *Equation 1.1* using the combined foreign and domestic sample. Columns (4) to (7) report the results using alternative combinations of fixed effects and clustered standard error structures following Amiram et al. (2016) to demonstrate that the inferences are not sensitive to these choices.³⁵

Consistent with H1, the coefficients on *Foreign*EA* are significantly negative in every specification, suggesting that foreign listers have a significantly lower spread spike at announcement than domestic listers. As discussed in H1, this result indicates that compared with domestic listers' EAs, foreign listers' EAs contain a *relatively* greater proportion of information

³⁴ Another alternative model specification to test H1 is to aggregate the daily observations based on EA and non-EA periods, and examine whether the average spreads during the EA window differ from the average spreads during the pre-EA period. The results are consistent with those presented in Table 4. The regression results for H2 are also generally robust when using this alternative average spread model, except that the coefficient on *Foreign*Post* in Table 6 Column (4) is no longer significant.

³⁵ To mitigate concerns regarding the potential impact of macroeconomic events, I re-run all tests using an alternative sample that excludes EAs issued during the financial crisis period (from July 2007 to March 2009). The results remain robust. In addition, the author is not aware of any firm-specific concurrent event that would systematically cause a difference in the spread spikes at the EA dates between foreign and domestic firms. Therefore, any such randomly occurring firm-specific events would be more likely to introduce additional noise to the model, thus working against finding significant results.

that is only new to unsophisticated investors. In addition, the coefficients on *Foreign* are all positive, suggesting that foreign listers have higher pre-EA bid-ask spreads on average than domestic listers. Taken together, the results in Table 4 show that both foreign listers and domestic listers have a bid-ask spread spike at announcement, but the spike is significantly lower for foreign listers. Based on Kim and Verrecchia's (1994) theory, this difference in spread spike at announcement is likely to be driven by the greater pre-EA information gaps between sophisticated and unsophisticated investors in foreign listers.

3.3.3 The Spread Spike at Announcement and Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices (H1a to H1e)

To support the previous conjecture, I further investigate several features that are likely to be associated with foreign listers' wider information gaps prior to their EAs. Table 5 Panel A presents the results from the estimations of *Equation 1.2* using the foreign-lister sample only, and Panel B presents results from the estimations of *Equation 1.3* using the full sample, including both foreign and domestic listers. In general, the main effects of weaker reporting requirements and investor protections, lower levels of analyst following and institutional ownership, and less timely and less frequent earnings updates are all positive. These results indicate that compared to other foreign listers, foreign listers from countries with weaker regulations, foreign listers that have lower levels of analyst following and institutional ownership, and foreign listers that update their EAs on a less timely and less frequent basis have a higher bid-ask spreads on average prior to the EA date.

Consistent with H1a, the coefficient on *InvestorProtect_low*EA* in Panel A column (2) is significantly negative, suggesting that foreign listers from countries that have weaker investor protection have a lower spike at announcement than foreign listers from better regulatory

regimes. These results indicate that the EAs of foreign listers from weaker regulatory regimes contain *relatively* more information that is only new to unsophisticated investors. Consistent with H1b and H1c, the coefficients on *AnalystFollow_low*EA* and *InstitutionOwner_low*EA* in columns (3) and (4) are also significantly negative, indicating that the EAs are a more important source of new information for unsophisticated investors in foreign listers with fewer information intermediaries. In addition, the significantly positive coefficients on *EAlag_long*EA* and *EAFreq_low*EA* in columns (5) and (6) also indicate that the EAs of foreign listers with greater EA lag and listers updating earnings on a less timely basis create a more important channel for unsophisticated investors to gather information. Overall, these analyses of foreign listers' home-country regulatory characteristics, financial intermediaries, and firm disclosure choices support H1a to H1e and suggest that the lower spread spike at announcement for foreign listers could be explained by their weaker home-country regulations, their lower levels of analyst following and institutional ownership, as well as their less timely and less frequent earnings updates.

In summary, the results in Table 4 and Table 5 suggest that before the EA date, the information gap between sophisticated and unsophisticated investors is wider for foreign listers than for domestic listers. Consequently, foreign listers' EAs contain a *relatively* greater proportion of information that is new to unsophisticated investors but is already known by sophisticated investors, resulting in a lower spread spike at announcement for foreign listers compared to domestic listers. The results also underscore the importance of EAs as a source of new information to unsophisticated investors in foreign listers, particularly for companies operating under weaker regulatory regimes, those with fewer financial intermediaries, and those with less timely and infrequent earnings updates.

3.3.4 The Effects of EAs on Post-EA Bid-ask Spreads (H2)

Before testing H2, I first explore whether my foreign lister and domestic lister samples each respectively have a bid-ask spread decrease after the EA date. Following Yohn's (1998) model, I compare the daily bid-ask spreads in the [+2, +10] window after the EAs with the daily spreads in the [-10, -2] window prior to the EAs. $Post=1$ if the trading day is in the [+2, +10] window after the EA date. Table 6 columns (1) and (2) respectively show that foreign listers and domestic listers each have a significant decrease in bid-ask spreads after the EAs, which is consistent with previous U.S. empirical evidence (Amiram et al., 2016; Stoumbos, 2022; Yohn, 1998). Combined with the findings from Table 4, the results suggest that EAs lead to a temporary increase in bid-ask spreads within the [-1, +1] EA window for both foreign and domestic listers. Furthermore, the spreads subsequently decline to lower than the pre-EA level in the [+2, +10] window after the EA date.

Table 6 columns (3) to (7) present the results from the estimations of *Equation 2.1* using the combined foreign and domestic sample under various model specifications following Amiram et al. (2016). Consistent with H2, the coefficients on *Foreign*Post* are significantly negative in every specification, suggesting that the decrease in post-EA bid-ask spreads is greater for foreign listers than domestic listers. In addition, the coefficients on *Foreign* are all positive, suggesting that foreign listers have higher pre-EA bid-ask spreads on average than domestic listers. Taken together, the results in Table 6 show that both foreign listers and domestic listers experience a spread decrease shortly after the EAs, but the decrease is significantly greater for foreign listers. These results support the notion that compared to domestic listers' EAs, the EAs of foreign listers are a more important channel for unsophisticated investors to learn new information, thereby having greater effects in reducing the bid-ask spreads after the EA date.

3.3.5 The Post-EA Spread Decrease and the Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices (H2a to H2e)

Based on Kim and Verrecchia's (1994) theory, the greater post-EA spread decrease for foreign listers is likely to be driven by the greater pre-EA information gaps between their sophisticated and unsophisticated investors. To support this conjecture, I further investigate several features that are likely to be associated with foreign listers' wider information gaps prior to their EAs. Table 7 Panel A presents the results from the estimations of *Equation 2.2* using the foreign-lister sample only. Consistent with H2a, the coefficients on *ReportingRequire_low*Post* and *InvestorProtect_low*Post* in columns (1) and (2), respectively, are each significantly negative, suggesting that foreign listers from countries with more lenient reporting requirements and weaker investor protection experience a greater decrease in post-EA bid-ask spreads than foreign listers from better regulatory regimes. These results support the previous argument that EAs are a more important channel for unsophisticated investors in foreign listers from weaker regulatory regimes to gather new information, thereby having greater effects in reducing spreads. Consistent with H2b and H2c, the coefficients on *AnalystFollow_low*Post* and *InstitutionOwner_low*Post* in columns (3) and (4), respectively, are also significantly negative, suggesting that the EAs of foreign listers with fewer financial intermediaries play a greater role in reducing post-EA bid-ask spreads than those of other foreign listers. In addition, the significantly positive coefficients on *EAlag_long*EA* and *EAFreq_low*EA* in columns (5) and (6), respectively, indicate that foreign listers with greater EA lags and foreign listers who update earnings on a less timely basis disclose *relatively* more new information to unsophisticated investors in their EAs, thereby experiencing a greater decrease in spreads after the EA date. Panel B presents results from estimations of *Equation 2.3* using the full sample including both

foreign and domestic listers, which are generally consistent with those in Panel A. Overall, these analyses of foreign listers' home-country regulatory characteristics, financial intermediaries, and firm disclosure choices provide supportive evidence for H2a to H2e. The results suggest that the greater post-EA spread decrease for foreign listers is likely to be associated with their weaker home-country regulations, their lower levels of analyst following and institutional ownership, as well as their less timely and less frequent earnings updates.

In summary, the results in Table 6 and Table 7 suggest that for both foreign listers and domestic listers, the bid-ask spread spike at announcement is temporary, and the spreads decrease to below the pre-EA level shortly after the EA date. In addition, foreign listers experience a greater decrease in post-EA spreads than domestic listers, which seems to be driven by foreign listers from countries with weaker regulations, those with fewer financial intermediaries, as well as foreign listers updating earnings on a less timely and less frequent basis. Overall, these findings support the conjecture that, compared to domestic listers' EAs, the EAs of foreign listers are a relatively more important channel for unsophisticated investors to learn new information, especially with respect to foreign listers from weaker regimes, those followed by fewer financial intermediaries, and those updating earnings on a less timely and less frequent basis.

3.3.6 Discussion

As discussed in Section 3.2.4, foreign listers, particularly those from weaker regulatory regimes, exhibit a relatively higher (lower) proportion of trading occurring in the pre-EA window (post-EA window) compared to domestic listers in each calendar quarter (as illustrated in Figure 2). Combined with the results reported in Tables 4 to 7, the data suggest that sophisticated investors in foreign listers have greater opportunities to reap more benefits from

pre-EA trading during which time the bid-ask spreads are higher relative to comparable periods for domestic listers.³⁶ These results suggest that the SEC may want to consider implementing more stringent reporting requirements (e.g., implementing Reg FD, setting clear deadlines for periodic financial updates, and/or requiring at least semi-annual updates) to better protect unsophisticated investors' interests.

3.4 Additional Analyses

3.4.1 Introduction

In section 3.4, I conduct additional tests to understand the effect of EAs on longer-term bid-ask spreads and assess the robustness of my findings in Section 3.3. Specifically, in Section 3.4.2, I conduct analyses to test whether and how foreign listers' bid-ask spreads in the longer term after their EAs are different from those of domestic listers. In Section 3.4.3, I reconduct the analyses in Section 3.3 using alternative matching approaches. Section 3.4.4 concludes this section with a summary.

3.4.2 The Effect of EAs on Longer-term Bid-ask Spreads

It is important to understand how the EAs affect bid-ask spreads in a longer window after the EAs. Following previous empirical studies (Henry et al., 2021), I use the average bid-ask spreads over the period of two days to 61 days after the EAs to capture the longer-window effect. The results in Table 8 show that foreign listers have a greater level of bid-ask spreads than domestic listers over the 60 days after their EA date. In addition, foreign listers from weaker regulatory regimes, those lacking financial intermediaries, and those that update their earnings on

³⁶ I am not claiming that unsophisticated investors in foreign listers suffer greater economic losses. However, given that higher volumes of trades occur during the [-10, -2] window prior to the foreign lister EAs when bid-ask spreads are high, it is not unreasonable to assume that sophisticated investors may have greater opportunities to reap more benefits from unsophisticated investors in foreign listers than domestic listers. I leave a more detailed examination of these wealth transfers to future work.

a less timely and less frequent basis are associated with greater average post-EA bid-ask spreads in the longer term. This result is robust to using alternative measures, such as average bid-ask spreads in two days to 31 days after the EAs and annual average bid-ask spreads in the calendar year of the EAs. Overall, these results are consistent with the previous argument that foreign listers, especially those from weaker regulatory regimes, those lacking financial intermediaries, and those that update their earnings on a less timely and less frequent basis have a relatively weaker information environment in general compared with domestic listers. Considering the EAs of foreign listers are an important channel to reduce bid-ask spreads, the SEC may want to consider implementing more stringent reporting requirements (e.g., implementing Reg FD, setting clear deadlines for periodic financial updates, and/or requiring at least semi-annual updates) to lower the average bid-ask spreads and improve the information environment of foreign listers.

3.4.3 Alternative Matching Methods and Foreign Lister Samples

I adopt several alternative matching approaches to address the concern that the results reported are driven by a specific matching method. I report the detailed robustness test results in Appendix E and I summarize those results in Table 9. First, I match foreign firm-quarters with domestic firm-quarters based on the direction of SUE, calendar quarter, two-digit industry code (GICS Sector), and closest firm size, and find the results are robust.³⁷ In addition, following Shipman et al. (2017), I match domestic firm-quarters to foreign firm-quarters using propensity score matching (PSM) based on *TotalAssets*, *Turnover*, *PriorQuarterVolatility*,

³⁷ The sample size reduces to 22,270 foreign-domestic firm-quarter pairs when using this alternative matching method. Please refer to the Appendix E for the detailed results. I use the GICS industry classification instead of the SIC industry classification because GICS covers 120 countries whereas SIC is primarily used for the U.S. market (Phillips and Ormsby, 2016). This makes GICS a more suitable option in the context of foreign listers. In addition, Phillips and Ormsby (2016) note that the CRSP website highlights that the SIC codes are not assigned or periodically reviewed by any government agency under strict procedures, hence they should be used with caution.

PriorQuarterTurnover, *AnalystFollowing*, *InstitutionalOwnership*, *AbsSUE*, *AbsAbret* and *EAFreq* in Equation (1.1).³⁸ In general, the results are consistent with the results reported in Table 4 to Table 8.³⁹ Furthermore, following McMullin and Schonberger (2022), I match domestic firm-quarters to foreign firm-quarters using the Entropy Balancing Method (EBM). The results are generally consistent except that the coefficients on *Foreign*Post* become insignificant.⁴⁰

3.4.4 Conclusion

In Summary, Section 3.4 demonstrated that foreign listers from weaker regulatory regimes, lacking financial intermediaries and updating earnings less timely and less frequently are associated with greater bid-ask spreads in the longer term. In addition, the evidence reported in this section also strengthens my findings in Section 3.3 by using several alternative matching methods.

³⁸ I require a one-to-one match without replacement in the PSM process. The PSM program imposes a common support, uses a caliper of 0.03, and trims observations with extreme propensity scores less than 0.05 or more than 0.95. The sample size reduces to 21,955 foreign-domestic firm-quarter pairs.

³⁹ Following the recommendation from Shipman et al. (2017), I include the control variables in the regressions to adjust for the potential remaining differences in covariates between foreign listers and domestic listers. Please refer to the Appendix E for the detailed results. My results are also robust to an alternative PSM method based on firm size and returns on assets, with the requirements of the same direction of SUE, the same calendar quarter, and the same two-digit industry code.

⁴⁰ Following McMullin and Schonberger (2022), I trimmed observations with extreme propensity scores (≤ 0.05 or ≥ 0.95). By using the EBM, the domestic lister sample and the foreign lister sample have the exact same mean and variation for all the control variables. One potential explanation for the *Foreign*Post* becoming insignificant is that the coefficients *Foreign*Post* in the Pre-EA versus Post-EA analyses are generally of less statistical significance than the coefficients on *Foreign*EA* in the EA-date analyses. By using EBM, a more rigorous matching technique in general (which removes all the differences in the covariate distribution between foreign and domestic lister samples), the coefficients on *Foreign*Post* are no longer significant.

CHAPTER 4

Textual Features of EAs and Bid-ask Spreads Surrounding the EAs

4.1 Hypotheses Development (Hypotheses H3-H4)

4.1.1 Introduction

In Chapter 3, I document that foreign listers experience a temporary increase in bid-ask spreads (i.e., a bid-ask spread spike) at announcement and a decrease in bid-ask spreads over the ten days after the EAs. In addition, the bid-ask spread spike at announcement is lower, and the post-announcement bid-ask spread decrease is greater than those of comparable domestic listers. Further analyses also show that the spread spike at announcement is lower, and the post-announcement spread decrease is greater for those foreign listers from weaker regulatory regimes, those lacking financial intermediaries, and those updating earnings on a less timely or less frequent basis. In this chapter, I focus on the textual features of foreign listers' EAs and explore how the changes in bid-ask spreads at announcement and after the EAs are influenced by the disclosure levels of EAs. In Section 4.1.2, I posit hypothesis H3 to test the association between the disclosure levels of EAs and the increase in bid-ask spreads at announcement. In Section 4.1.3, I posit hypothesis H4 to test the association between the disclosure levels of EAs and the bid-ask spread decrease over the ten days after the EAs. Section 4.1.4 concludes this section with a summary.

4.1.2 Higher Levels of Disclosure and Bid-Ask Spreads at Announcement

Previous literature often views EAs with more words, more numbers, and more forward-looking information as a sign of greater informativeness of EAs (I use the term “higher levels of disclosure” to describe these textual features of EAs in my dissertation). For example, in the U.S.

setting, previous studies using the length of EAs as a measure of information quantity or quality generally find it to be positively associated with the informativeness of EAs (Demers et al., 2019; Francis et al., 2002; Van Buskirk, 2012). However, higher levels of disclosure in foreign listers' EAs are not necessarily associated with better informational outcomes. On the contrary, when focusing on the short window surrounding the EAs, higher levels of disclosure can lead to higher bid-ask spreads.

Firstly, as Blankespoor et al. (2020) emphasize, processing firms' disclosures takes time, effort and money. Therefore, there are inherent limits to the amount of information that human beings can process in a short period of time, especially for unsophisticated investors. Specifically, in the context of foreign listers' EAs, previous studies suggest that these firms tend to disclose a greater amount of information. For instance, as shown in Lundholm et al. (2014), on average, foreign listers' EAs are about twice as long as those of comparable U.S. listers. In addition, previous research suggests that longer and more complex disclosures can overwhelm investors. For example, in the domestic 10-K setting, Miller (2010) documents that longer disclosures are associated with lower trading volumes at the filing date, especially among small investors. This finding suggests that lengthy disclosure **may be too costly for smaller investors to process** in a short period of time.⁴¹ Given that foreign listers tend to issue much longer EAs than domestic firms, unsophisticated investors in foreign listers can face greater disadvantages in processing the excess amount of information disclosed at the EA date, leading to higher bid-ask spreads.

⁴¹ Miller (2010) notes that "as processing costs increase, small investors would continue to follow certain stocks but would elect to delay their trades either to give them time to process the reports or to time their trades to coincide with easier to access information events."

Secondly, previous literature suggests that due to constrained cognitive resources, investors may only focus on subsets of information that are more readily available and/or with which they are more familiar (Hirshleifer, 2001). Since investors have biases towards what they feel affinity for and are familiar with, U.S. investors, especially those who are unsophisticated, are more likely to take a longer time to process information in foreign firms' disclosures. In addition, unsophisticated U.S. investors may experience greater difficulties in comprehending the information disclosed by foreign listers, especially when those listers come from countries with cultural backgrounds, business environments or have official languages that differ from those with which U.S. investors are familiar. Therefore, unsophisticated investors may encounter greater challenges in digesting information with respect to these foreign listers in a limited timeframe during the EA window.

Considering unsophisticated investors have relatively more limited cognitive resources, especially when processing information that they are less familiar with, I expect that the more information disclosed in foreign listers' EAs, the greater the disadvantage the unsophisticated investors have in digesting the information in a short period of time compared to the sophisticated investors. Therefore, my second hypothesis is as follows:

H3: Higher levels of disclosure in foreign listers' EAs are associated with a higher spike in bid-ask spreads at announcement.

4.1.3 Higher Levels of Disclosure and Bid-Ask Spreads After the EA Date

The effect of higher levels of information on post-EA spreads can be different from the effect on EA-date spreads because, as Kim and Verrecchia (1994) emphasize, the advantage of sophisticated investors in processing new information may be temporary, and how long this advantage remains is an empirical issue. Prior empirical evidence for U.S. domestic firms

supports this argument by showing that the bid-ask spread spike is within the [-1, +1] EA window, and the spreads drop below the pre-EA levels over the ten days after the EAs (Amiram et al., 2016; Coller & Yohn, 1997; Lee et al., 1993; Stoumbos, 2022).

Although extant studies have shown that the effects on average diminish two days after the EAs in the U.S. setting, none of them has investigated how the timeframe of the effect varies among different levels of disclosure in EAs. It is possible that unsophisticated investors are able to absorb all disclosed information in a short period after the EAs and benefit from higher levels of disclosure because more information is disclosed to the public. In this case, higher levels of disclosure can be associated with a greater decrease in bid-ask spreads in the short window after the EAs. On the other hand, with higher levels of disclosure in the EAs, unsophisticated investors may take a longer time to incorporate the greater amount of information disclosed in the EAs. In addition, due to the potential “home biases” of U.S. investors, they may need an even longer time to process the higher amount of information disclosed in foreign firms’ EAs. Therefore, higher levels of disclosure can be associated with a smaller decrease in bid-ask spreads in a short period after the EAs. Taken together, my H4, stated in the null form, is as follows:

H4: Higher levels of disclosure in foreign listers’ EAs are not associated with the decrease in bid-ask spreads after the EA date.

4.1.4 Conclusion

In Section 4.1, I posit two hypotheses. I present hypothesis H3 to test how higher levels of disclosure in foreign listers’ EAs (i.e., foreign listers’ EAs with more words, more numbers and more forward-looking information) are associated with the bid-ask spread spike at announcement. In addition, I present hypothesis H4 to investigate whether and how higher levels

of disclosure in foreign listers' EAs are associated with the bid-ask spread decrease after the EA date. In the next section, I will discuss my research design and sample selection procedures.

4.2 Research Design

4.2.1 Introduction

Section 4.2 describes my proxies for the levels of disclosure and the research design for the hypotheses developed in the previous section. The section begins by introducing my textual measures of the levels of disclosure in Section 4.2.2. I then present the regression models to test hypotheses H3 and H4 in Section 4.2.3. Section 4.2.4 presents details about how I screen EAs from foreign listers' 6-K filings. Finally, I conclude with a summary in Section 4.2.5.

4.2.2 The Textual Measures of EAs

I use three textual measures as proxies for the levels of disclosure. As Leuz and Verrecchia (2000) emphasize, the "levels of disclosure" in the theoretical literature can be interpreted as either information quantity or increased information quality or both. I use the word count of EAs (*Wordcount*) to measure information quantity in the EA setting. Although previous literature investigating firms' annual reports generally finds that longer reports are less transparent and less readable, studies focusing on shorter disclosures like EAs generally find that longer reports are more informative than shorter ones (Demers et al., 2019; Francis et al., 2002; Van Buskirk, 2012). I also include the numeric word count (*NIcount*) and the forward-looking sentence count (*FLScount*) following Lundholm et al. (2014) and Henry et al. (2021), respectively. EAs containing more numbers are viewed as more precise and verifiable, and therefore of higher quality. Similarly, EAs with more forward-looking information are also viewed as being of higher quality by providing more relevant information for predicting firm performance, and they are associated with a stronger market reaction (Bozanic et al., 2018;

Henry et al., 2021). I do not distinguish between information quantity and information quality in my study, as I use these three proxies interchangeably to measure the disclosure level (*DiscLevel*) in EAs. Appendix C presents more details about the methods I use to identify numeric words and forward-looking sentences in the EAs.

4.2.3 Regression Models for Testing Hypotheses H3 and H4

Similar to the research design in Chapter 3, I examine the change in daily bid-ask spreads across several days surrounding the EA date following the literature (Amiram et al., 2016; Stoumbos, 2022; Yohn, 1998). I include daily bid-ask spreads for all days in the [-10, +1] window surrounding the EA date following Yohn's (1998) model, and run the regression using the foreign-lister EA sample:

$$\text{LnSpread} = c_0 + c_1EA + c_2\text{DiscLevel} + c_3\text{DiscLevel} * EA + \text{Ctrls} + \text{YearFixEf} + \varepsilon \quad (3)$$

As mentioned before, I use three continuous variables, *Wordcount*, *Nlcount*, and *FLScout* to measure the disclosure level in foreign listers' EAs (*DiscLevel*). Based on H3, a finding of $c_3 > 0$ supports the argument that higher levels of disclosure in foreign listers' EAs mainly provide new information to both types of investors, with unsophisticated investors potentially being subject to greater information overloading effects in the short term because of their limited attention and resources.

Next, I use the following model to examine the effect of higher levels of disclosure on bid-ask spreads in a short period after the EA date relative to the pre-EA period. I run the regression using the foreign-lister EA sample and include daily bid-ask spreads for all days in the [-10, -2] and [+2, +10] window surrounding the EA date following Yohn's (1998) model:

$$\text{LnSpread} = d_0 + d_1\text{Post} + d_2\text{DiscLevel} + d_3\text{DiscLevel} * \text{Post} + \text{Ctrls} + \text{YearFixEf} + \varepsilon \quad (4)$$

A finding of $d_3 < 0$ supports the argument that the disadvantage of unsophisticated investors in processing a greater amount of information disclosed in foreign listers' EAs is also limited to the $[-1, +1]$ window surrounding the EA date. The higher levels of disclosure help unsophisticated investors to gain a better understanding of firm performance, thereby reducing the bid-ask spreads shortly after the EA date. On the other hand, a finding of $d_3 > 0$ suggests that the disadvantage of unsophisticated investors in processing the additional words, numbers, and forward-looking information in EAs still exists over the ten days after the EAs, and unsophisticated investors may need a longer time to fully incorporate the higher amount of information disclosed in foreign listers' EAs.

4.2.4 Sample Selection

Given the substantial manual verification workload, I limit my textual analysis sample to 6-Ks that are filed by foreign listers between 2005 to 2018. Firstly, I use the keywords from Boone, Schumann-Foster, and White (2020) to identify the potential EA 6-K filings. I also include those 6-Ks that mention the term '*earning*' three or more times to retain more potential EA filings for further screening.⁴² Next, I use two date variables that foreign filers provide to the SEC – *RDATE* and *FDATE* – to help with identifying EA-related 6-Ks. *RDATE* represents the event date of a 6-K, which in the EA scenario should be the announcement date. *FDATE* represents the filing date of a 6-K, which in theory should be soon after the announcement date because the SEC requires foreign filers to file material events "*promptly*." I keep the 6-Ks that meet at least one of the following three criteria:

⁴² I observe that many 6-Ks do not have a meaningful SEC index or they are in pure text rather than html format, from which I am not able to identify titles or emphasized text. About half of the 6-K filings remain uncategorized in Boone, Schumann-Foster, and White's (2020) sample. Therefore, instead of only searching the index, titles and emphasized texts, I search the same set of keywords in the entire text to retain more potential EA filings.

- i. The *RDATE* variable is in the [-1, +1] EA window;
- ii. The *RDATE* variable equals the *Compustat* fiscal quarter-end date; or ⁴³
- iii. The *FDATE* variable is within the [-1, +20] EA window.⁴⁴

There are 1,118 foreign listers and 45,513 potential EA 6-K filings left after the keyword and date screening. Among these potential EA filings, 12,452 filings are one-to-one matched to 12,452 foreign listers' firm-quarters.⁴⁵ The remaining 33,061 filings are matched to 11,835 foreign firm-quarters and need further screening because two or more filings are matched with the same firm-quarter. I select these filings into my sample by giving priority to those that contain EA-related words in their indexes, titles, or highlighted texts. For those filings that contain no meaningful titles, I select them based on their self-reported *RDATE* precision. If there are still multiple potential EA filings matched with the same firm quarter, I then manually examine these 6-K filings and identify the actual EA filings. As mentioned in Section 2.2, foreign listers provide both their earnings updates and quarterly financial reports using 6-Ks if they choose to provide both. This is the main reason that multiple potential 6-K filings are matched with the same firm quarter and need further manual screening. The detailed procedures to identify and extract the EAs from 6-K filings are presented in Appendix A (Step 1).

After excluding observations that have missing control variables, I perform another manual screening for 6-K filings based on word count because many foreign listers encompass multiple events within one 6-K filing (sometimes even within one document). To extract the EA

⁴³ This is to accommodate a common error I observed in the *RDATE* variable, which is that foreign listers seem to misunderstand the event date of an EA filing as the fiscal quarter-end date rather than the EA date.

⁴⁴ This is the filing date screening window used by Lundholm et al. (2014) to identify the potential 6-K filings that are about firms' Q4 earnings release.

⁴⁵ By manually checking a random sample of 50 such 6-Ks, 94% are actual EA filings. The filings that are misclassified are an annual meeting announcement with financial statements as an appendix, an announcement of a company's strategic investment, and an announcement of a big achievement of the company's founder.

portion more accurately, I manually examine the 6-K filings that have less than 600 or greater than 20,000 words and update the textual measures accordingly. The detailed procedures are presented in Appendix A (Step 2). Appendix B provides examples of foreign listers' EAs in a variety of lengths.

In summary, by using a combination of keyword searching, filing time screening, and manual verification to identify foreign listers' EAs, there are 16,575 foreign listers' EAs left in my final sample. One noteworthy observation is that, in general, foreign listers' EAs are much longer than those of domestic listers. On average, foreign listers' EAs contain approximately 6,000 words, 750 numbers and 15 forward-looking sentences. In contrast, the EAs of comparable domestic listers average around 2,900 words, 425 numbers and 6 forward-looking sentences. This discovery aligns with the finding of Lundholm et al. (2014).⁴⁶ Given the considerably greater length of foreign listers' EAs, there is a higher chance that U.S. investors, especially the unsophisticated investors, may need a longer time to digest the greater amount of information disclosed in foreign listers' EAs.

4.2.5 Conclusion

Section 4.2 describes my measures of the textual features of EAs, the regression models I use to test my hypotheses H3 and H4, and the procedures to screen EAs from foreign listers 6-K filings. By using a combination of keyword searching, date screening and manual verification methods, I am able to extract 16,575 foreign listers' EAs from their 6-K filings from 2005 to 2018. In the next section, I will report and analyze the empirical results about how the textual

⁴⁶ According to Lundholm et al. (2014), the average length of their foreign-lister EA sample is around 4,700 words, which is much higher than the average length of U.S.-lister EAs (2,300 words). The average *Nlcount* of foreign listers' EAs is around 880, which is also much higher than that of domestic listers' EAs (418).

features of these foreign listers' EAs influence the effect of EAs on the bid-ask spreads surrounding the EA date.

4.3 Empirical Analyses

4.3.1 Introduction

In this section, I first run a preliminary test to validate my textual measures of levels of disclosure and then test hypotheses H3 and H4 and report the results. Specifically, in Section 4.3.2, I investigate how my textual measures are associated with the abnormal trading volume and abnormal return volatility at announcement. In Section 4.3.3 and Section 4.3.4, I then present the results of the association between the levels of disclosure in foreign listers' EAs and changes in bid-ask spreads at announcement (H3) and after the EAs (H4), respectively. Section 4.3.5 concludes my empirical results.

4.3.2 Preliminary Tests on Whether Longer Foreign EAs Contain a Greater Amount of Information

As mentioned, some previous empirical literature suggests that, for U.S. domestic firms, longer EAs tend to be more informative to investors. However, given that the EAs of foreign listers are generally much longer than those of domestic firms, the informativeness of foreign listers' EAs may decrease with the length of the disclosure, particularly for those with relatively long EAs. To assess the informativeness of foreign listers' EAs, I use 3-day abnormal trading volume and abnormal return volatility following Lerman and Livnat (2010). In addition, I include squared textual measures in the regression analysis to account for potential non-linear associations. The results are presented in Table 10. In general, *Wordcount*, *NIcount* and *FLScount* are each positively associated with EA-date abnormal trading volume and abnormal return volatility. In contrast, the squared textual measures – *Wordcount*², *NIcount*² and

$FLScout^2$ – are each negatively associated with the measures of disclosure informativeness. The preliminary results indicate that the informativeness of foreign listers' EAs increases with *Wordcount*, *Nlcount*, and *FLScout* when the EAs are relatively short. However, as the EAs become longer, an additional amount of words, numbers and forward-looking sentences begins to be less informative to the investors.

4.3.3 EA-date Bid-Ask Spread Spike and Levels of Disclosure (H3)

Table 11 presents the relationship between the bid-ask spread spike at announcement and the levels of disclosure. The results in Panel A shows that the coefficients on $DiscLevel*EA$ interaction terms are all significantly positive. These findings suggest that foreign listers issuing EAs with more words, EAs with greater numerical content, and EAs with more forward-looking information are each associated with a greater bid-ask spread spike at announcement. The results are robust to an alternative model specification that includes country fixed effects in the regressions, which is presented in Panel B. According to Kim and Verrecchia's (1994) theory, these results indicate that higher levels of disclosure in foreign listers' EAs provide more new information to both sophisticated and unsophisticated investors. Unsophisticated investors are more disadvantaged at processing higher levels of new information disclosed in the EAs, leading to a higher spread spike at announcement.

To examine the potential non-linear effect of levels of disclosure on bid-ask spread spike at announcement, I further include $DiscLevel^2$ and $DiscLevel^2*EA$ in the regression, and the results are presented in Table 11 Panel C. In general, the results provide no evidence for a non-linear relationship between levels of disclosure and the spread spike at announcement. The

results also indicate that the positive association between levels of disclosure and greater spike at announcement are not driven by overly long foreign EAs that are in general less informative.⁴⁷

In summary, the results in Table 11 are consistent with my findings for H1 in Chapter 3. In Chapter 3, the results demonstrate that *on average*, foreign listers' EAs provide information that is new to both sophisticated and unsophisticated investors, leading to a bid-ask spread spike at announcement. The results in Table 11 further show that *marginally*, the additional units of words, numbers, or forward-looking sentences in foreign listers' EAs also provide information that is new to both sophisticated and unsophisticated investors, thereby leading to a greater bid-ask spread spike at announcement.

4.3.4 Post-EA Bid-Ask Spread Decrease and Levels of Disclosure (H4)

Next, I investigate whether the disadvantage of unsophisticated investors in digesting higher levels of disclosure in foreign listers' EAs diminishes shortly after the EAs. Table 12 presents the relationship between the levels of disclosure in foreign listers' EAs and the decrease in post-EA bid-ask spreads. In general, the coefficients on *Post* are significantly negative, whereas the coefficients on *Wordcount*Post* and *FLScout*Post* are significantly positive. These results suggest that for foreign listers disclosing EAs with more words and more forward-looking information, there is a spread decrease after their EAs, but the decrease is smaller than that of foreign listers disclosing shorter EAs or EAs with less forward-looking information. In other words, these results indicate that the unsophisticated investors need a longer time (i.e.,

⁴⁷ These findings are consistent with Kim and Verrecchia's (1994) argument that the increase in spreads is not caused by less informative disclosures. Instead, the increase in spread spike at announcement indicates that a greater amount of information that is new to both sophisticated investors and unsophisticated investors is disclosed in the EAs.

more than ten days after the EAs) to digest the additional words or forward-looking information disclosed in foreign listers' EAs.

To examine the potential non-linear effect of levels of disclosure on bid-ask spread decreases after the EAs, I further include $DiscLevel^2$ and $DiscLevel^2*Post$ in the regression, and the results are presented in Table 12 Panel C. Consistent with the preliminary test results, the coefficients on $Wordcount*Post$ and $NIcount*Post$ are each significantly negative. In contrast, the coefficients on the squared textual measure interaction terms – $Wordcount^2*Post$ and $NIcount^2*Post$ – are each significantly positive. These results indicate that the decreases in spreads in ten days after EAs are positively associated with $Wordcount$ and $NIcount$ when the foreign listers' EAs are relatively short. However, as the EAs become longer, an additional amount of words and numbers disclosed in EAs begins to have a smaller effect in reducing spreads in the [+2, +10] window after the EAs.

The results in Table 12 are different from, but are not necessarily contradictory to, my findings for H2 in Chapter 3. In Chapter 3, the results demonstrate that *on average*, the disadvantage of unsophisticated investors in processing new information disclosed in foreign listers' EAs are limited to the three-day EA window, and the bid-ask spreads start to decrease in the [+2, +10] window after the EA date. In contrast, the results in Table 12 show that *marginally*, the disadvantage of unsophisticated investors in digesting a greater amount of new information (i.e., additional units of words or forward-looking sentences) disclosed in foreign listers' EAs can still exist in the [+2, +10] window, leading to a smaller decrease in post-EA spreads. In fact, it is possible that the investors need more time to assimilate longer EAs with more forward-looking information than shorter ones with less such information, thereby leading to a more modest spread decrease in the short post-announcement window after the EA date. If this is the

case, I should find a greater bid-ask spread decrease associated with higher levels of disclosure in a longer post-announcement window beyond ten days after the EA date when the investors gradually assimilate the additional amount of information. I explore this possibility and find supporting evidence in the additional tests in Section 4.4.3. In addition, the non-linearity analysis in Table 12 Panel C also suggested that the results for H4 can be driven by foreign' EAs that contain extensive information. I further explore this possibility and find some supporting evidence in Section 4.4.4.

4.3.5 Conclusion

In summary, the evidence reported in Section 4.3 is generally consistent with the notion that unsophisticated investors are at a disadvantage in processing longer foreign listers' EAs with more numerical and forward-looking information, leading to a greater spread spike at announcement. In addition, this disadvantage of unsophicaited investors can still exist over the ten days after their EAs, leading to a smaller decrease in post-EA spreads. In the next section, I will check the robustness of these findings and investigate whether the disadvantage of unsophisticated investors in processing the additional words, numbers or forward-looking information in foreign listers' EAs gradually disappears in a longer window after the EAs.

4.4 Additional tests

4.4.1 Introduction

In this section, I conduct additional tests to assess the robustness of my findings in Section 4.3. Specifically, in Section 4.4.2, I check the robustness of my findings for H3 and H4 using median-split textual measures. In Section 4.4.3, I further examine my findings for H4 by analyzing foreign listers' bid-ask spread patterns beyond ten days after the EAs. In Section 4.4.4, I assess the potential influences of EAs containing extensive information by using quintile

textual measures. In Section 4.4.5, I investigate the role of foreign listers' home-country features on the decrease in bid-ask spreads after the EA date. In Section 4.4.6, I investigate the longer-term effects of higher levels of disclosure in foreign listers' EAs. Section 4.4.7 concludes with a summary.

4.4.2 Median-split Analyses Based on the Textual Measures

To test the robustness of the findings in Section 4.3.2 and Section 4.3.3 for H3 and H4, I use some alternative measures for the textual features of EAs. Specifically, I use the median-split measures (*WordCount_high*, *NIcount_high*, *FLScout_high*, respectively) and reconduct the tests for H3 and H4 in Table 13 Panel A and Table 14 Panel A, respectively. In general, the results are all consistent with the findings in Table 11 and Table 12, confirming that higher levels of disclosure in foreign listers' EAs are associated with a higher bid-ask spread spike at announcement and a smaller decrease in bid-ask spreads over the ten days after the EA date. The results are also robust to using another alternative splitting method (i.e., splitting the sample into three groups and dropping the middle group based on the textual measures), which are presented in Table 13 Panel B and Table 14 Panel B. Overall, all these results support the notion that unsophisticated investors are at a disadvantage in processing longer foreign listers' EAs with a greater amount of numerical and forward-looking information compared to sophisticated investors, and this disadvantage can still exist over the ten days after the EA date.

4.4.3 Post-EA Analyses Beyond the 10-day Window after the EAs

The previous results reported in Section 4.3.3 indicate that unsophisticated investors need a longer time (more than ten days after the EA date) to digest the additional amount of information disclosed in foreign listers' EAs. However, according to Kim and Verrecchia (1994), the information overloading effects should be temporary and higher levels of disclosure should

eventually decrease information asymmetry. One possible explanation for the previous finding is that unsophisticated investors may need a longer time to digest the greater amount of information disclosed. Therefore, I expand the time window to 20 days before and after the EA date, and the regression results are presented in Table 15. In general, the results indicate that higher levels of disclosure in foreign listers' EAs are no longer associated with a smaller decrease in bid-ask spreads in the [+11, +15] window after the EA date. In addition, in the [+16, +20] window, the coefficients on *Wordcount*Post* and *NIcount*Post* become significantly negative. These results provide some evidence that the unsophisticated investors need a longer time to digest the greater amount of information disclosed in the foreign listers' EAs.

In summary, these results complement the previous findings for hypothesis H4, supporting Kim and Verrecchia's (1994) argument that the disadvantage of unsophisticated investors in processing new information is temporary, and that unsophisticated investors of foreign listers eventually benefit from higher levels of disclosure in a longer post-EA period (i.e., 20 days after the EA date).

4.4.4 The Potential Non-linear Relationship

As Lundholm et al. (2014) suggest, another possible explanation for higher levels of disclosure resulting in a more modest post-EA bid-ask spread decrease is that some EAs are too long and contain too many numbers and forward-looking sentences. To explore this possibility, I split the foreign lister samples into five groups based on their textual measures and use the lowest Quintile (*1Quintile*) as the baseline. I run the pre-EA versus post-EA tests using four sub-windows, and the results are presented in Table 16. Overall, the results provide supporting evidence that the negative association between levels of disclosure and the decrease in spreads in the [+2, +10] window reported in Section 4.3.3 are likely to be driven by foreign listers in the top

quintile (*5Quintile*). In addition, for foreign listers in the lower quintiles, higher levels of disclosure start to lead to a greater decrease in bid-ask spreads in the [+7, +10] window after the EA date. However, for foreign listers in the top quintile, higher levels of disclosure are not associated with a greater decrease in bid-ask spreads until 16 days after the EAs (i.e., in the [+16, +20] window). These results further support the argument that investors may need a longer time to assimilate the information disclosure in foreign listers' EAs if their EAs are extensive and contain many numbers and forward-looking sentences.

In summary, the analyses provide evidence supporting the conjecture that the negative association between levels of disclosure and the decrease in spreads in the [+2, +10] window after the EA date for H4 are likely to be driven by those EAs containing more extensive information. These results are also consistent with my findings in Section 4.4.3, suggesting that unsophisticated investors of foreign listers eventually benefit from higher levels of disclosure in a longer post-EA period (i.e., 20 days after the EA date).

4.4.5 The Influence of Foreign Listers' Home-country Regulatory Characteristics

Previous literature suggests that there exist huge variations among the disclosures of foreign firms from different countries (Henry et al., 2021; Lundholm et al., 2014). To understand the potential influence of foreign listers' home-country regulatory characteristics, I split the foreign listers into three groups based on the reporting requirements and investor protection in their home countries and drop the middle group to reduce categorization errors. I rerun the regressions for H4 within each of the subsamples, and the results are presented in Table 17. In general, the results provide supportive evidence that the negative association between higher levels of disclosure and the spread decreases in the [+2, +10] window after the EA date are mainly driven by foreign listers from weaker regulatory regimes. In addition, the greater

decreases in bid-ask spreads in the [+11, +20] window are mainly driven by foreign listers from better regulatory regimes. In summary, these findings suggest that unsophisticated investors need a longer time in processing additional information disclosed in the EAs of foreign listers that are from weaker regulatory countries.

4.4.6 The Effect of EA Disclosure Levels on Longer-term Bid-ask Spreads

It is also important to understand how the levels of disclosure in EAs are associated with bid-ask spreads over the longer term. Following previous empirical studies (Henry et al., 2021), I use the average bid-ask spreads over the 2 days to 61 days after the EAs to capture the longer-term effects. I also use average bid-ask spreads in the [+2, +31] window after the EA date and the annual average bid-ask spreads in the year of the EA date as alternative measures. Table 18 presents the regression results showing how longer-term spreads are associated with three textual measures. In general, the results indicate that for foreign listers from better regulatory regimes, disclosing more words, numbers, and forward-looking information in their EAs are associated with lower long-term bid-ask spreads. However, there is no such association for foreign listers from weaker regulatory regimes. These results highlight the fact that higher levels of disclosure in EAs may not always be associated with better informational outcomes, especially for firms from weaker regulatory regimes.

One possible explanation for the non-significant association between higher levels of disclosure and lower post-EA bid ask spreads for firms from weaker regulatory regimes is that their EAs may be of lower information quality compared to those of listers from stronger regulatory regimes. This conjecture is supported by previous empirical studies. For instance, Lang et al. (2006) find that foreign listers exhibit more earnings management and have lower price-earnings associations relative to comparable U.S. firms, especially for firms from countries

with weaker investor protection. Additionally, as the SEC (2020) emphasizes, the PCAOB faces greater challenges in accessing the audit working papers of foreign listers from certain emerging markets, including China. The SEC (2020) also highlights the limited ability of U.S. authorities to enforce actions against non-U.S. companies and non-U.S. individuals. While I do not claim this to be the unique explanation for the results shown in Table 17 and Table 18, the empirical and practical evidence mentioned above suggests that it is not unreasonable to conjecture that this is a contributing factor, and future research could investigate this further.

4.4.7 Conclusion

In Summary, Section 4.4 complements my findings for hypothesis H4 in Section 4.3.3 by showing that the disadvantage of unsophisticated investor in processing a greater amount of information disclosed in foreign listers EAs gradually diminishes in 20 days after the EA date. In addition, it shows the previously mentioned negative association between higher levels of disclosure and decreases in spreads in the [+2, +10] window are likely to be driven by foreign listers' EAs containing extensive information. The longer-term analyses also demonstrate that for foreign listers from better regulatory regimes, disclosing more words, numbers, and forward-looking information in their EAs are associated with lower average bid-ask spreads over the longer term. Taken together, these results are consistent with the notion that the disadvantage of unsophisticated investor in processing a greater amount of information is temporary, and the unsophisticated investors in foreign listers from better regulatory regimes can eventually benefit from higher levels of disclosure in the long run.

CHAPTER 5

Conclusion

Using 27,806 pairs of foreign and domestic quarterly EAs from 2005 to 2021, I find that compared to domestic listers' EAs, the EAs of foreign listers are associated with a lower bid-ask spread spike on the EA date and a greater decrease in bid-ask spreads over the ten days after the EA date. Specifically, I find these differences are more pronounced for foreign listers from weaker regulatory regimes, for those with fewer information intermediaries, and for those with less frequent and less timely earnings updates. This is consistent with the notion that foreign listers' EAs disclose *relatively* more information that is only new to unsophisticated investors.

I then examine whether and how the textual features of foreign listers' EAs affect the bid-ask spread patterns surrounding the EA date. Specifically, I find that foreign listers' EAs with more words, more numerical, and more forward-looking information are associated with a greater bid-ask spread spike at announcement and a smaller decrease in bid-ask spreads shortly after the EAs. Additional tests show that the smaller decrease is mainly driven by foreign EAs with extensive information, and unsophisticated investors eventually benefit from higher levels of disclosure over the 20 days after the EAs. Taken together, these results are consistent with the argument in Kim and Verrecchia's (1994) theory that the disadvantage of unsophisticated investors in processing new information compared to sophisticated investors is temporary. Further analyses also show that higher levels of disclosure in foreign listers' EAs can have different informational effects depending on their home-country regulatory characteristics. Specifically, I find that EAs with more words, more numbers, or more forward-looking information are associated with a positive informational outcome both in the 20-day window

after the EAs and in the longer terms only for foreign listers from better regulatory regimes. However, I find no such associations for foreign listers from weaker regulatory regimes.

This dissertation offers the first examination of the short-term informational effects of EAs in the context of U.S.-listed foreign firms, an economically significant and understudied set of firms that have different reporting requirements than their domestic counterparts. The findings suggest that there are differences in the pre-EA information sets held by sophisticated versus unsophisticated investors in foreign listers relative to domestic firms. Notably, the results imply that unsophisticated investors in foreign listers have relatively less information before the EA date.

This dissertation also investigates how textual features of EAs impact the information value of foreign listers' EAs, an area that has been relatively underexplored in previous literature due to data extracting difficulty. My study fills the gap and documents that for foreign firms, disclosing longer EAs with more forward-looking and more numerical information is associated with a greater increase in bid-ask spreads at announcement. The positive association between higher levels of disclosure and spreads continues to exist over the ten days after the EAs but gradually diminishes and turns negative over the 20 days after the EAs. These findings support the notion that the higher levels of disclosure can eventually benefit the investors in the long run.

Most importantly, this dissertation has policy implications. My results show that compared to domestic listers, foreign listers have a bigger difference in pre-EA information held by sophisticated versus unsophisticated investors. Considering that foreign listers are currently exempt from Reg FD and are not required to file their interim financial information within a clearly defined time range, the SEC may want to consider implementing more stringent reporting requirements to better protect unsophisticated investors. In addition, my country-level and firm-

level analyses suggest that there are potentially greater benefits to increasing the disclosure requirements for foreign listers that are characterized by less frequent and less timely earnings filings, and for firms that are followed by fewer information intermediaries. Further analyses also highlight that huge variations exist among foreign listers' disclosures, and higher levels of disclosure in EAs may not always be associated with better informational outcomes, especially for firms from weaker regulatory regimes. Taken together, the results validate the SEC's concerns about the current one-size-fits-all approach to regulating foreign lister disclosures.

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<https://doi.org/10.1007/s11142-008-9083-2>

Appendix A

Procedures for Extracting Foreign Listers' EAs from 6-K Filings

Step 1: Identifying 6-K filings that may contain EAs

Identifying potential 6-K filings containing EAs involves two sub-steps.

Step 1.1: Keyword searching for EA 6-K filings

I utilize three keyword-searching methods to identify potential EA 6-K filings. Firstly, as suggested by Boone et al. (2021), I search for specific keywords and phrases in the emphasized text (i.e., title, header, index, centered text, bold text, and underlined text) or in the first paragraph of the 6-K filings. These keywords include: “*reports guidance*,” “*announce earnings*,” “*update earnings*,” “*earnings release*,” “*EPS guidance*,” “*sales results*,” “*announce revenues*,” “*interim report*,” “*quarterly report*,” “*annual report*,” “*audited financial results*,” “*six-month results*,” “*financial summary*,” or “*financial highlights*.”⁴⁸

However, I find many 6-Ks lacking informative titles or indexes. In fact, almost half of the 6-K filings remain uncategorized in Boone et al.'s (2021) sample. To capture more potential 6-K filings that could be EA-related, I employ two additional sets of keywords and search for these keywords in the entire text of the 6-K filings. First, I include 6-Ks that mention the word “*earning*” three or more times as potential EA 6-K filings. I also include 6-Ks that contain conjugations such as: “*eps*,” “*earning*,” “*income*,” “*financial*,” “*interim*,” “*annual*,” “*year*,”

⁴⁸ These keywords are listed in the Table IA-3 in the internet appendix of Boone et al. (2021). I allow up to four additional words to appear between these keywords and accept variations in tenses, voices, forms, and orders. For example, when searching for the keywords “*announce earnings*,” 6-K filings that contain phrases such as “*announce its forth quarter earnings*,” “*announced earnings*,” and “*earnings announcement*” in their emphasized text or in the first paragraph are all qualified as potential EA 6-Ks.

“semi,” “three month,” “six month,” “nine month,” “3 month,” “6 month,” “9 month,” “quarter,” “q1,” “q2,” “q3,” or “q4” following or followed by “report,” “guide,” “announce,” “result,” “update,” “release,” “press release,” “highlight,” or “summary.”⁴⁹

Step 1.2: Prioritizing EA 6-K filings

As described in section 4.2.4, I combine keyword searching and date screening to select potential EA 6-K filings. If a foreign firm-quarter is linked to more than one potential EA 6-K filings, I prioritize the 6-K containing Boone et al.’s (2021) keywords in its emphasized text or its first paragraph. If more than one 6-Ks meet the first requirement, I then select the 6-K that mentions “*earning*” three or more times in its text. If multiple 6-Ks meet the second requirement, I select the 6-K which is filed on the date closest to its EA date. In cases with multiple 6-Ks remaining, I perform manual verification to identify the actual EA 6-K.

Most of the manual verification cases are caused by foreign listers filing multiple 6-Ks for their EAs, shareholder meetings, and financial reports on the same date. For example, Benetton Group SPA, an Italian global fashion company, filed two 6-Ks on May 16th, 2005. One 6-K is about its 2015 first-quarter results, which is the actual EA 6-K filing.⁵⁰ The other one is its shareholder meeting announcement with the title “*IAS/IFRS accounting principles adopted as from consolidated half-year report to June 30, 2005; BENETTON GROUP SHAREHOLDERS’ MEETING APPROVES 2004 FINANCIAL STATEMENTS; Board appoints Alessandro Benetton as Deputy Chairman of the company.*”⁵¹ Because this title includes keywords such as “*half-year*

⁴⁹ Similarly, I permit up to four additional words to appear between these keywords and allow variations in tenses, voices, forms, and orders.

⁵⁰ The 6-K filing is available at:
<https://www.sec.gov/Archives/edgar/data/849314/000084931405000007/interimrep.htm>

⁵¹ The 6-K filing is available at:
<https://www.sec.gov/Archives/edgar/data/849314/000084931405000008/shareholdersmeeting.htm>

report” and “2004 financial statements,” this annual shareholder meeting 6-K is incorrectly categorized as a potential EA 6-K filing. In such cases, I manually select the actual EA 6-K from multiple 6-K filing candidates.

Step 2: Extracting the EA portion from the EA 6-K filings

Extracting the EA portion from the EA 6-K filings involves two sub-steps.

Step 2.1: Retrieving the EA documents from the EA 6-K filings

I observe that EAs are typically included in the first exhibit in foreign listers’ 6-K filings. Therefore, I retain the first non-pdf and non-graphic exhibit in a 6-K filing as its EA document when that 6-K filing contains multiple documents. When a 6-K filing contains only one document (i.e., the 6-K Form), I retain the 6-K Form and exclude the SEC checklist paragraph which is included in every 6-K Form and has no relation with the information content of the disclosure. Figure 3 presents an example of the SEC checklist paragraph in a 6-K Form.

To provide further clarity on the selection process, I outline a common structure of a 6-K filing in HTML format in the following paragraph. I then present two examples. The first example is for a foreign lister that files its EA in the 6-K Form. The second example is for a foreign lister that files its EA in an exhibit.

A common structure of a 6-K filing in HTML format is as follows:

```
<SEC-DOCUMENT>
  <SEC-HEADER>
    SEC header information
  </SEC-HEADER>
  <DOCUMENT>
    <TYPE>6-K
    <SEQUENCE>1
    <FILENAME>6k.htm
    <DESCRIPTION>6-K
    <TEXT>
```

```

        <html>
        First Document: The content of the Form 6-K
        </html>
        </TEXT>
    </DOCUMENT>
    <DOCUMENT>
    <TYPE>EX-99.1
    <SEQUENCE>2
    <FILENAME>exh99_1.htm
    <DESCRIPTION>EXHIBIT 99.1
        <TEXT>
        Second Document: The content of the first exhibit
        </TEXT>
    </DOCUMENT>
    ...
    <DOCUMENT>
    Third Document: The content of the second exhibit if there are
    more than one exhibits
    </DOCUMENT>
    ...
</SEC-DOCUMENT>

```

A 6-K filing usually begins with the SEC header information section, which includes information such as the filer's CIK number, industry code, and filing time. Following Li (2008) and Lundholm et al. (2014), I exclude the SEC header information between “*SEC-HEADER*>” and “<*SEC-HEADER*.”

The subsequent section is the 6-K Form, which is the first document with the tag “<*SEQUENCE*>1.” If the filing contains an exhibit, the exhibit will be included in the 6-K as the second document with the tag “<*SEQUENCE*>2.” Additional exhibits, if any, will be tagged as “<*SEQUENCE*>3,” “<*SEQUENCE*>4,” and so forth.

Figure 4 illustrates the case of Benetton Group SPA, an Italian global fashion company, which only filed a 6-K filing that contains only one document – the 6-K Form – and includes the EA in it.⁵² Figure 5 presents an example of QSound Labs Inc, a Canadian audio technology

⁵² The 6-K filing is available at: <https://www.sec.gov/Archives/edgar/data/849314/0000849314-05-000007-index.html>

company, which filed five documents in its 6-K filing, with the EA located in its first exhibit (second document).⁵³

Step 2.2: Manual validation of EA-related documents with extreme word counts

After extracting the EA-related documents from 6-K filings, I manually check all the documents with word counts less than 600 or exceeding 20,000.

EA-related documents with fewer than 600 words are usually notices of EAs rather than substantive EA disclosures. Take Sify Limited, an Indian e-commerce company, as an example. This company filed a 6-K containing the following EA-related contents:

*“SIFY to Announce Fiscal 2005 and Fourth Quarter Financial Results on Tuesday, April 19; CHENNAI, India, Monday, April 18, 2005. Sify Limited (Nasdaq: SIFY), India’s premier Internet, network and e-Commerce services Company, announced today it will release fourth quarter and fiscal 2005 financial results on Tuesday, April 19, at 7:00 AM ET.”*⁵⁴

As this is only a notice of EA rather than an actual EA disclosure, I manually exclude it from my EA sample.

EA 6-K filings with word counts exceeding 20,000 are usually those encompassing multiple material events within one document (i.e., in the 6-K Form or in an exhibit). For example, American Israeli Paper Mills Ltd., an Israeli paper manufacturing company, filed a 6-K for its third-quarter results in 2006. The 6-K filing includes only one non-graphic document, which is the 6-K Form. However, within this 6-K Form, the company included the earnings press

⁵³ The 6-K filing is available at: <https://www.sec.gov/Archives/edgar/data/840518/0001137171-06-002060-index.html>

⁵⁴ The 6-K filing is available at: <https://www.sec.gov/Archives/edgar/data/1094324/000095013405007605/f08042exv99w1.htm>

release, the management discussion, consolidated financial statements, and financial statements of its related companies.⁵⁵ Because foreign listers may adopt different approaches to separate contents within one document (e.g., page breakers, indexes, and titles), it is challenging to employ a systematic method similar to step 2.1 for extracting the EA-related portion. In such cases, I manually select the EA portion from the document.

Step 3: Remove boilerplate paragraphs

To prepare the documents for constructing textual measures, I eliminate boilerplate paragraphs that have no relation to the information content of the EA disclosure. This includes signatures, contact information, detailed information about conference calls, safe harbour statements, and firms' introductory information.

⁵⁵ The 6-K filing is available at: <https://www.sec.gov/Archives/edgar/data/5337/000091068006001068/f6k-11082006.htm>

Appendix B

Examples of Foreign listers' Earnings Announcements in different lengths

There exist significant variations in the length of EAs. Here are examples of EAs in different lengths.

Example 1. Better online solutions ltd. 2017 third quarter EA

This is an example of a relatively short foreign listers' EA, containing 7 pages. The full disclosure can be accessed through the following link:

https://www.sec.gov/Archives/edgar/data/1005516/000121390017012779/f6k113017ex99-1_bosbett.htm

Example 2. Infineon technologies AG 2008 fourth quarter EA

This is an example of a medium-length foreign listers' EA, containing 23 pages. The full disclosure can be assessed through the following link:

<https://www.sec.gov/Archives/edgar/data/1107457/000132693208000330/f02108e6vk.htm>

Example 3. NTT DoCoMo Inc. Earnings Release for the Fiscal Year Ended March 31, 2005

This is an example of a lengthy foreign listers' EA, spanning 86 pages. The full disclosure can be assessed through the following link:

<https://www.sec.gov/Archives/edgar/data/1166141/000119312505103718/d6k.htm>

Appendix C

Definition of Textual Measures – Numerical Information (NI) and Forward-looking Sentence (FLS)

Definition of NI:

I follow Lundholm et al. (2014) when defining the measure *NIcount*. A word is qualified as an *NI* word if it contains numeric digits and/or characters such as “.”, “;”, “%”, “\$”, “£” or “€”. However, time-related numbers, such as year, month, date and time print, are excluded from the count. In addition, I exclude numbers with prefixes such as “*Item*,” “*Items*,” “*Note*,” “*Notes*,” “*Tier*,” “*Rule*,” “*Rules*,” “*Level*,” “*Levels*,” “*Room*,” “*Part*,” “*Parts*,” “*Age*,” “*APB*,” “*ASC*,” “*FAS*,” “*SFAS*,” “*SAB*,” “*D.C.*,” “*FIN*,” “*Page*,” “*Pages*,” “*No.*,” “*No*,” “*File*,” “*APB*,” “*Form*,” “*Forms*,” “*Section*,” “*Sections*,” “*Table*,” “*Tables*,” “*Chapter*,” “*Chapters*,” “*Topic*,” “*Topics*,” “*Statement*,” “*Regulation*,” “*Phase*,” “*S&P*,” “*Series*,” “*Suite*,” “*Exhibits*,” “*EX*,” or “*Appendix*.”

Definition of FLS:

I follow Muslu et al. (2015) when defining the measure *FLScount*. I define a sentence in the EAs as an *FLS* if it meets any of the following criteria:

(1) It contains one or more of the following words or word groups: (a) “*will*” or “*future*”, or (b) “*next*,” “*incoming*,” “*coming*,” “*upcoming*,” “*subsequent*,” or “*following*,” directly followed by “*fiscal*,” “*period*,” “*month*,” “*quarter*,” or “*year*.”⁵⁶

⁵⁶ According to Muslu et al. (2015), words such as “*shall*,” “*should*,” “*can*,” “*could*,” “*may*,” or “*might*” are not considered as forward-looking keywords because these words are often used in legal terms or in boilerplate paragraphs.

(2) It includes one or more of the following verb conjugations: “*aim*,” “*anticipate*,” “*assume*,” “*commit*,” “*estimate*,” “*expect*,” “*forecast*,” “*foresee*,” “*hope*,” “*intend*,” “*plan*,” “*project*,” “*seek*,” or “*target*” directly following “*we*,” “*company*,” “*corporation*,” “*firm*,” “*do not*,” “*does not*,” “*is*,” “*are*,” “*not*,” “*normally*,” “*currently*,” “*and*,” “*but*,” or “*also*.”⁵⁷

(3) It refers to a year (i.e., a four-digit number) that falls after the year of filing. For example, if a sentence in a company’s EA filed in 2018 refers to the year “2019,” it is qualified as an *FLS*. To avoid numbers that occasionally meet the criteria, a four-digit number is excluded if any characters such as “\$,” “%,” “.” or “,” appear before, between or after the four digits. Given that my sample period for textual analysis is from 2005 to 2018, I further require the first two digits of the four-digit year number to be “20.”

⁵⁷ According to Muslu et al. (2015), the reason for using conjugations rather than simply searching for forward-looking verbs themselves is that some of these verbs have noun forms which have no forward-looking connotation. For example, the word “*plan*” mentioned in “*customers’ health benefit plans*” is not related to forward-looking information.

Appendix D Variable Definitions

Variable	Definition
<i>LnSpread</i>	$LnSpread = \text{Log} ((Ask-Bid)/[(Ask+Bid)/2*1000])$, where <i>Ask</i> and <i>Bid</i> are the CRSP daily closing ask and bid prices.
<i>EA</i>	<i>EA</i> equals 1 if the trading day is -1,0, or 1 relative to the EA date, 0 otherwise.
<i>Post</i>	<i>Post</i> equals 1 if the trading day is 2 to 10 relative to the EA date. <i>Post</i> equals 0 if the trading day is -10 to -2 relative to the EA date.
<i>InvestorProtect</i>	<i>InvestorProtect</i> is the judicial efficiency score of foreign listers' home markets. The score ranges from 0 to 10 with higher scores indicating more judicial efficiency.
<i>ReportingRequirement</i>	<i>ReportingRequirement</i> is the index published by the World Economic Forum. The index ranges from 0 to 7 with higher values representing stronger accounting and auditing standards.
<i>Foreign</i>	An indicator variable is set to 1 if the firm is a foreign lister, and 0 otherwise.
<i>Price</i>	<i>Price</i> represents the firm's CRSP daily stock price.
<i>TotalAssets</i>	<i>TotalAssets</i> is calculated as the log of the firm's total assets on the fiscal quarter-end date.
<i>Turnover</i>	<i>Turnover</i> represents the firm's CRSP daily trading share volume divided by the total share outstanding (in thousands) at the fiscal quarter-end.
<i>PriorQuarterVolatility</i>	<i>PriorQuarterVolatility</i> is defined as the standard deviation of a firm's daily stock return during the prior quarter.
<i>PriorQuarterTurnover</i>	<i>PriorQuarterTurnover</i> is calculated as the average trading volume divided by the total share outstanding during the prior quarter.
<i>AnalystFollowing</i>	The number of analysts who issued at least one estimate in 180 days prior to the EA date, as reported by I/B/E/S. If this variable is missing in I/B/E/S, it is set to 0.
<i>InstitutionalOwnership</i>	<i>InstitutionalOwnership</i> is measured as the percentage of institutional ownership at the most recent available date prior to EAs.
<i>AbsSUE</i>	The absolute value of standardized unexpected earnings (<i>SUE</i>) using a rolling seasonal random walk model. SUE is calculated as actual earnings minus expected earnings, scaled by the stock price. $SUE_{jt} = (X_{jt} - X_{jt-4}) / P_{jt}$.
<i>AbsAbret</i>	<i>AbsAbret</i> is the absolute value of abnormal return during the [-1,+1] event period, where the abnormal return is calculated as the firm's return less the value-weighted market return.
<i>EAFreq</i>	<i>Freq</i> equals the number of Compustat quarters with non-missing EA dates and key financial numbers in one year preceding the current announcement.

Appendix E

Additional Regression Results

1. Comparison between English-speaking Countries versus Non-English-speaking Countries

Previous literature indicates that U.S. investors may encounter greater difficulty in acquiring information for foreign listers from non-English-speaking countries (Lundholm et al., 2014). Therefore, I expect foreign listers from non-English-speaking countries to exhibit a higher level of pre-EA spreads, a lower spread spike at announcement, and a greater decrease in spreads after the EA date. I create a binary variable *NonEnglish* following the approach of Lundholm et al. (2014) and the regression results are presented in Table A-1.

Consistent with the expectation, the coefficients on *NonEnglish* are all significantly positive, indicating that foreign listers from non-English-speaking countries exhibit a higher level of pre-EA bid-ask spreads. The coefficient on *NonEnglish*EA* is significantly negative in the within foreign-lister sample test. However, the coefficients on *NonEnglish*EA* in the full sample test and *NonEnglish*Post* in both tests are all negative but statistically insignificant. These results provide weak evidence that the EAs of foreign listers from non-English-speaking countries provide relatively more new information to unsophisticated investors, thereby mitigating the spread spike at announcement. However, there is no evidence indicating that listers from non-English-speaking countries have a greater spread decrease after the EA date.

Table A-1 English-speaking Countries versus Non-English-speaking Countries

Pre-EA versus EA-date Bid-ask Spreads		Pre-EA versus Post-EA Bid-ask Spreads	
Column:	(1)	Column:	(2)
Dep. Var.:	Daily LnSpread	Dep. Var.:	Daily LnSpread
Days relative to the EA date:	[-10, +1]	Days relative to the EA date:	[-10, -2] v.s. [+2, +10]
<i>Panel A: Foreign-lister Sample Variations</i>		<i>Panel A: Foreign-lister Sample Variations</i>	
EA	0.046*** (11.64)	Post	-0.017*** (-6.92)
NonEnglish	0.213*** (5.42)	NonEnglish	0.213** (5.42)
NonEnglish*EA	-0.011** (-2.10)	NonEnglish* Post	-0.004 (-1.18)
Control Variables	Yes	Control Variables	Yes
Fixed effects	Year	Fixed effects	Year
Clustered SE	Firm	Clustered SE	Firm
Observations	333,672	Observations	500,508
Adjusted R-squared	0.591	Adjusted R-squared	0.594
<i>Panel B: Full Sample Variations</i>		<i>Panel B: Full Sample Variations</i>	
EA	0.134*** (49.70)	Post	-0.078*** (-4.63)
Foreign	0.225*** (7.30)	Foreign	0.220*** (7.15)
Foreign*EA	-0.081*** (-17.27)	Foreign*Post	-0.009*** (-3.13)
NonEnglish	0.319*** (7.89)	NonEnglish	0.320*** (7.93)
NonEnglish*EA	-0.004 (-0.73)	NonEnglish* Post	-0.002 (-0.46)
Control Variables	Yes	Control Variables	Yes
Fixed effects	Year	Fixed effects	Year
Clustered SE	Firm	Clustered SE	Firm
Observations	667,344	Observations	1,001,016
Adjusted R-squared	0.627	Adjusted R-squared	0.631

The model specifications in Table A-1 Columns (1) and (2) are exactly the same as the model specifications in Table 5 and Table 7, respectively, except that the explanatory country-level characteristic in Table A-1 is *NonEnglish*.

2. Rerun the main tests using alternative matching methods

2.1 Traditional matching method based on firm-quarter, industry, size and the direction of SUE

I first adopt the traditional one-to-one matching method and match foreign firm-quarters with domestic firm-quarters based on the direction of SUE, calendar quarter, two-digit industry code (GIC Sector), and closest firm size, and find the results are robust. By further requiring the matching pairs to have the same 2-digit industry code, the sample size reduces to 22,270 foreign-domestic firm-quarter pairs. I rerun the regressions in Table 4 to Table 7 and the results are presented in Table A-2 to Table A-5.

The results are generally consistent with those reported in Tables 4 to 7. Some differences include that the coefficient on *InstitutionOwner_low*EA* in Table A-3 Panel A and the coefficient on *InstitutionOwner_low*Post* in Table A-5 Panel A become insignificant (with P values close to 0.1). The coefficients on *ReportRequire_low*EA* in Table A-3 Panel A become insignificant as well. In addition, the coefficient on *Foreign*Post* in Table A-5 Panel B becomes insignificant in Columns (3) and (5). One possible explanation is that the coefficients on *Foreign*Post* in Table 7 Panel B are of less statistical significance in Columns (3) and (5) (with a significant level of 0.05) than in other columns. Therefore, when applying a more rigorous matching method (further requiring matching pairs to be in the same industry), the coefficients of *Foreign*Post* become insignificant.

Table A-2 Pre-EA versus EA-date Bid-ask Spreads (Alternative Traditional Matching Method)

Column:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]
Sample:	Foreign Lister	Domestic Lister	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample
EA	0.040*** (13.53)	0.127*** (43.79)	0.121*** (41.00)	0.121*** (20.85)	0.120*** (41.12)	0.120*** (28.36)	0.122*** (20.76)
Foreign			0.421*** (17.83)	0.421*** (15.65)	0.421*** (17.90)	0.421*** (16.97)	0.453*** (16.60)
Foreign*EA			-0.071*** (-17.87)	-0.071*** (-10.19)	-0.071*** (-17.81)	-0.071*** (-13.97)	-0.070*** (-10.35)
Price	-0.015*** (-15.46)	-0.007*** (-22.58)	-0.010*** (-27.09)	-0.010*** (-8.62)	-0.010*** (-26.64)	-0.010*** (-14.98)	-0.010*** (-8.81)
Turnover	-0.000 (-0.42)	-0.002*** (-14.46)	-0.002*** (-10.51)	-0.002*** (-7.82)	-0.002*** (-10.76)	-0.002*** (-10.11)	-0.002*** (-8.66)
AbsSUE	-0.000*** (-5.08)	0.963*** (19.79)	-0.000** (-2.49)	-0.000*** (-3.14)	-0.000** (-2.35)	-0.000*** (-3.20)	-0.000** (-2.85)
AbsAbret	0.197* (1.88)	0.323*** (5.20)	0.275*** (4.58)	0.275** (2.72)	0.149** (2.46)	0.149** (2.34)	0.296*** (3.25)
AnalystFollowing	-0.062*** (-17.19)	-0.019*** (-14.02)	-0.038*** (-19.79)	-0.038*** (-15.76)	-0.038*** (-19.87)	-0.038*** (-18.50)	-0.034*** (-14.64)
InstitutionalOwnership	-0.038* (-1.68)	-1.264*** (-39.24)	-0.628*** (-15.46)	-0.628*** (-13.72)	-0.627*** (-15.49)	-0.627*** (-14.91)	-0.576*** (-12.50)
PriorQuarterVolatility	0.743 (1.08)	29.876*** (10.22)	24.649*** (10.67)	24.649*** (5.62)	33.181*** (12.35)	33.181*** (9.33)	12.630*** (3.60)
PriorQuarterTurnover	0.000** (2.20)	-0.005*** (-10.36)	-0.001*** (-6.42)	-0.001*** (-3.51)	-0.002*** (-7.24)	-0.002*** (-5.91)	-0.001** (-2.85)
TotalAssets	-0.252*** (-25.05)	-0.259*** (-42.36)	-0.240*** (-32.89)	-0.240*** (-23.31)	-0.239*** (-32.88)	-0.239*** (-29.62)	-0.274*** (-23.85)
EAfreq	-0.071*** (-5.02)	-0.040*** (-5.00)	-0.086*** (-9.54)	-0.086*** (-8.34)	-0.082*** (-9.07)	-0.082*** (-8.70)	-0.080*** (-7.97)
Constant	5.921*** (75.05)	5.646*** (118.53)	5.513*** (101.45)	5.513*** (79.39)	5.491*** (100.73)	5.491*** (92.98)	5.688*** (78.42)
Fixed effects	Year	Year	Year	Year	Quarter	Quarter	Year, Industry

Clustered SE	Firm	Firm	Firm	Firm, Year	Firm	Firm, Quarter	Firm
Observations	267,240	267,240	534,480	534,480	534,480	534,480	534,480
Adjusted R-squared	0.550	0.685	0.633	0.633	0.638	0.638	0.643

The model specifications in Table A-2 are exactly the same as the model specifications in Table 4, except that the sample in Table A-2 is constructed by an alternative matching method based on firm-quarter, industry, size and the direction of SUE.

Table A-3 Pre-EA versus EA-date Bid-ask Spreads – Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices (Alternative Traditional Matching Method)

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]
Median-split Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
<i>Panel A: Within Foreign-lister Sample Variation</i>						
EA	0.022 (1.37)	0.010 (0.75)	0.025*** (6.25)	0.036*** (8.74)	0.075*** (12.11)	0.014 (0.97)
ReportRequire_low	0.031 (1.62)					
ReportRequire_low*EA	-0.003 (-1.07)					
InvestorProtect_low		0.035*** (3.03)				
InvestorProtect_low*EA		-0.004** (-2.14)				
AnalystFollow_low			0.054*** (15.42)			
AnalystFollow_low*EA			-0.003*** (-6.15)			
InstitutionOwner_low				0.187*** (4.99)		
InstitutionOwner_low*EA				-0.008 (-1.41)		
EAlag_long					0.005*** (8.49)	
EAlag_long*EA					-0.001*** (-6.57)	
EAlag_low						0.073*** (5.10)
EAlag_low*EA						-0.007*

	Yes	Yes	Yes	Yes	Yes	(-1.78)
Control Variables	Year	Year	Year, Country	Year, Country	Year, Country	Year
Fixed effects	Firm	Firm	Firm	Firm	Firm	Firm
Clustered SE	263,592	254,460	267,240	267,240	267,240	267,240
Observations	0.550	0.553	0.579	0.579	0.582	0.550
Adjusted R-squared	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
Panel B: Full Sample Variation						
EA	0.123*** (7.19)	0.127*** (9.29)	0.103*** (27.18)	0.064*** (12.73)	0.138*** (31.49)	0.087*** (7.12)
Foreign	0.400*** (15.46)	0.377*** (13.71)	0.419*** (17.75)	0.416*** (17.62)	0.379*** (15.99)	0.420*** (17.81)
Foreign*EA	-0.071*** (-17.26)	-0.074*** (-16.68)	-0.063*** (-15.60)	-0.052*** (-12.62)	-0.059*** (-14.55)	-0.069*** (-17.40)
ReportRequire_low	0.057*** (2.94)					
ReportRequire_low*EA	0.000 (0.05)					
InvestorProtect_low		0.054*** (4.91)				
InvestorProtect_low*EA		0.000 (0.25)				
AnalystFollow_low			0.038*** (19.91)			
AnalystFollow_low*EA			-0.002*** (-7.19)			
InstitutionOwner_low				0.648*** (15.82)		
InstitutionOwner_low*EA				-0.086*** (-13.22)		
EAlag_long					0.004*** (9.92)	
EAlag_long*EA					-0.001***	

EAfreq_low						(-8.71)	0.088*** (9.65)
EAfreq_low*EA							-0.009*** (-2.85)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Year	Year	Year	Year	Year	Year	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Observations	530,832	521,700	534,480	534,480	534,480	534,480	534,480
Adjusted R-squared	0.635	0.638	0.633	0.633	0.633	0.632	0.633

The model specifications in Table A-3 are exactly the same as the model specifications in Table 5, except that the sample in Table A-3 is constructed by an alternative matching method based on firm-quarter, industry, size and the direction of SUE.

Table A-4 Pre-EA versus Post-EA Bid-ask Spreads (Alternative Traditional Matching Method)

Column:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]
Sample:	Foreign Lister	Domestic Lister	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample
Post	-0.022*** (-10.19)	-0.007*** (-4.10)	-0.014*** (-7.74)	-0.014*** (-3.65)	-0.012*** (-6.22)	-0.012** (-2.15)	-0.011*** (-5.94)
Foreign			0.405*** (17.27)	0.405*** (14.72)	0.414*** (17.65)	0.414*** (16.71)	0.446*** (19.32)
Foreign*Post			-0.008*** (-2.76)	-0.008 (-1.73)	-0.008*** (-2.77)	-0.008* (-1.72)	-0.008*** (-2.92)
Price	-0.015*** (-15.67)	-0.008*** (-24.24)	-0.010*** (-28.28)	-0.010*** (-8.58)	-0.010*** (-27.88)	-0.010*** (-15.07)	-0.011*** (-28.99)
Turnover	0.000** (2.28)	-0.003*** (-15.22)	0.000*** (2.75)	0.000* (1.77)	-0.001*** (-8.83)	-0.001*** (-7.81)	-0.002*** (-9.21)
AbsSUE	-0.000*** (-3.30)	0.963*** (20.01)	-0.000*** (-4.32)	-0.000*** (-4.52)	-0.000*** (-3.05)	-0.000*** (-4.00)	-0.000*** (-2.58)
AbsAbret	0.152 (1.48)	0.266*** (4.36)	0.137** (2.27)	0.137 (1.34)	0.062 (1.06)	0.062 (1.01)	0.222*** (3.94)
AnalystFollowing	-0.062*** (-17.12)	-0.018*** (-13.25)	-0.038*** (-19.93)	-0.038*** (-16.00)	-0.037*** (-19.57)	-0.037*** (-18.15)	-0.034*** (-17.99)
InstitutionalOwnership	-0.038* (-1.65)	-1.278*** (-39.83)	-0.672*** (-16.65)	-0.672*** (-13.89)	-0.640*** (-15.90)	-0.640*** (-15.39)	-0.589*** (-14.99)
PriorQuarterVolatility	0.935 (1.34)	29.396*** (10.25)	7.706*** (6.08)	7.706*** (3.61)	35.371*** (12.84)	35.371*** (9.57)	12.466*** (7.46)
PriorQuarterTurnover	0.000 (1.42)	-0.004*** (-9.88)	-0.000 (-1.10)	-0.000 (-1.06)	-0.002*** (-7.04)	-0.002*** (-5.91)	-0.001*** (-4.71)
TotalAssets	-0.251*** (-24.96)	-0.257*** (-42.08)	-0.238*** (-33.00)	-0.238*** (-23.08)	-0.237*** (-32.68)	-0.237*** (-29.21)	-0.272*** (-35.14)
EAfreq	-0.067*** (-4.77)	-0.037*** (-4.63)	-0.076*** (-8.54)	-0.076*** (-7.58)	-0.078*** (-8.79)	-0.078*** (-8.47)	-0.076*** (-8.77)
Constant	5.910*** (74.93)	5.643*** (119.31)	5.517*** (103.47)	5.517*** (84.94)	5.482*** (100.69)	5.482*** (94.45)	5.680*** (105.38)

Fixed effects	Year	Year	Year	Year	Quarter	Quarter	Year, Industry
Clustered SE	Firm	Firm	Firm	Firm, Year	Firm	Firm, Quarter	Firm
Observations	400,860	400,860	801,720	801,720	801,720	801,720	801,720
Adjusted R-squared	0.554	0.693	0.636	0.645	0.645	0.649	0.636

The model specifications in Table A-4 are exactly the same as the model specifications in Table 6, except that the sample in Table A-4 is constructed by an alternative matching method based on firm-quarter, industry, size and the direction of SUE.

Table A-5 Pre-EA versus Post-EA Bid-ask Spreads - Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices (Alternative Traditional Matching Method)

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]
Median-split Var:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
<i>Panel A: Within Foreign-lister Sample Variation</i>						
Post	-0.074*** (-6.07)	-0.044*** (-4.49)	-0.027*** (-9.53)	-0.023*** (-9.94)	0.003 (0.73)	-0.060*** (-5.82)
ReportRequire_low	0.031 (1.62)					
ReportRequire_low* Post	-0.010*** (-4.50)					
InvestorProtect_low		0.035*** (3.05)				
InvestorProtect_low* Post		-0.003** (-2.36)				
AnalystFollow_low			0.054*** (15.30)			
AnalystFollow_low* Post			-0.001*** (-3.22)			
InstitutionOwner_low				0.193*** (5.19)		
InstitutionOwner_low* Post				-0.002 (-1.58)		
EAlag_long					0.005*** (8.59)	
EAlag_long* Post					-0.001*** (-5.94)	
EAFreq_low						0.073*** (5.08)
EAFreq_low*EA						-0.011***

Control Variables	Yes	Yes	Yes	Yes	Yes	(-3.77)
Fixed effects	Year	Year	Year, Country	Year, Country	Year, Country	Yes
Clustered SE	Firm	Firm	Firm	Firm	Firm	Year
Observations	395,388	381,690	400,860	400,860	400,860	400,860
Adjusted R-squared	0.554	0.557	0.584	0.583	0.587	0.554

Median-split Var:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
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Panel B: Full Sample Variation

Post	-0.044*** (-3.72)	-0.034*** (-3.70)	-0.023*** (-8.97)	-0.018*** (-5.76)	0.001 (0.34)	-0.057*** (-6.47)
Foreign	0.393*** (15.26)	0.369*** (13.48)	0.403*** (17.21)	0.404*** (17.24)	0.374*** (15.86)	0.404*** (17.23)
Foreign*Post	-0.006** (-2.11)	-0.006** (-1.97)	-0.004 (-1.37)	-0.007** (-2.29)	-0.003 (-1.10)	-0.006** (-2.07)
ReportRequire_low	0.055*** (2.86)					
ReportRequire_low*Post	-0.006*** (-2.84)					
InvestorProtect_low		0.055*** (5.02)				
InvestorProtect_low*Post		-0.003*** (-2.61)				
AnalystFollow_low			0.038*** (20.16)			
AnalystFollow_low*Post			-0.001*** (-5.69)			
InstitutionOwner_low				0.675*** (16.57)		
InstitutionOwner_low*Post				-0.006 (-1.58)		
EAlag_long					0.004*** (9.64)	
EAlag_long*Post					-0.000***	

Eafreq_low						(-5.67)	0.082*** (9.01)
Eafreq_low*EA							-0.012*** (-4.99)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Year	Year	Year	Year	Year	Year	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Observations	796,248	782,550	801,720	801,720	801,720	801,720	801,720
Adjusted R-squared	0.640	0.644	0.636	0.636	0.638	0.638	0.636

The model specifications in Table A-5 are exactly the same as the model specifications in Table 7, except that the sample in Table A-5 is constructed by an alternative matching method based on firm-quarter, industry, size and the direction of SUE.

2.2 Propensity score matching (PSM)

Next, following Shipman et al. (2017), I match domestic firm-quarters to foreign firm-quarters using propensity score matching (PSM) based on *TotalAssets*, *Turnover*, *PriorQuarterVolatility*, *PriorQuarterTurnover*, *AnalystFollowing*, *InstitutionalOwnership*, *AbsSUE*, *AbsAbret* and *EAFreq* in Equation (1.1). I require a one-to-one match without replacement in the PSM process. The PSM program imposes a common support, uses a caliper of 0.03, and trims observations with extreme propensity scores less than 0.05 or more than 0.95. The sample size reduces to 21,955 foreign-domestic firm-quarter pairs. I rerun the regressions in Table 4 to Table 7 and the results are presented in Table A-6 to Table A-9.

In general, the results are consistent with those reported in Tables 4 to 7. Some differences include that the coefficient on *InstitutionOwner_low*EA* in Table A-7 Panel A becomes insignificant (with a P value close to 0.1). In addition, the coefficients on *InvestorProtect_low*EA* in Table A-7 Panel B become significant. Similar to the first alternative matching method, PSM makes the coefficient on *Foreign*Post* in Table A-9 Panel B become insignificant in Columns (2), (3) and (5).

Table A-6 Pre-EA versus EA-date Bid-ask Spreads (PSM)

Column:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var.:	Daily	Daily	Daily	Daily	Daily	Daily	Daily
Days relative to the EA date:	LnSpread	LnSpread	LnSpread	LnSpread	LnSpread	LnSpread	LnSpread
	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]
Sample:	Foreign Lister	Domestic Lister	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample
EA	0.040***	0.121***	0.106***	0.106***	0.106***	0.106***	0.106***
	(14.08)	(42.63)	(39.43)	(17.92)	(39.30)	(22.41)	(17.69)
Foreign			0.362***	0.362***	0.363***	0.363***	0.393***
			(15.34)	(13.63)	(15.37)	(14.64)	(14.75)
Foreign*EA			-0.067***	-0.067***	-0.067***	-0.067***	-0.066***
			(-17.20)	(-9.21)	(-17.17)	(-12.91)	(-9.18)
Price	-0.017***	-0.009***	-0.012***	-0.012***	-0.011***	-0.011***	-0.012***
	(-16.68)	(-26.70)	(-30.75)	(-10.66)	(-30.43)	(-18.11)	(-10.78)
Turnover	-0.000	-0.002***	0.000***	0.000*	0.000***	0.000**	-0.000
	(-0.36)	(-13.95)	(2.60)	(1.98)	(2.98)	(2.63)	(-0.10)
AbsSUE	-0.000***	0.377***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(-5.87)	(14.40)	(-3.74)	(-3.82)	(-3.64)	(-4.25)	(-3.50)
AbsAbret	0.334***	0.362***	0.248***	0.248**	0.158***	0.158**	0.232**
	(3.55)	(5.23)	(4.12)	(2.29)	(2.61)	(2.25)	(2.29)
AnalystFollowing	-0.057***	-0.016***	-0.035***	-0.035***	-0.036***	-0.036***	-0.033***
	(-16.38)	(-11.03)	(-19.19)	(-16.25)	(-19.26)	(-18.31)	(-15.06)
InstitutionalOwnership	-0.041*	-1.319***	-0.676***	-0.676***	-0.681***	-0.681***	-0.616***
	(-1.70)	(-37.38)	(-16.77)	(-13.59)	(-16.89)	(-15.80)	(-12.51)
PriorQuarterVolatility	0.842	0.259	0.364	0.364	0.402	0.402	0.332
	(1.14)	(1.03)	(1.30)	(0.89)	(1.37)	(1.22)	(0.87)
PriorQuarterTurnover	0.000**	-0.002***	-0.000	-0.000	-0.000	-0.000	-0.000
	(2.04)	(-9.83)	(-0.63)	(-0.59)	(-0.65)	(-0.63)	(-0.67)
TotalAssets	-0.267***	-0.283***	-0.260***	-0.260***	-0.261***	-0.261***	-0.295***
	(-27.39)	(-42.29)	(-36.63)	(-30.80)	(-36.72)	(-34.52)	(-30.04)
EAfreq	-0.079***	-0.033***	-0.079***	-0.079***	-0.076***	-0.076***	-0.074***
	(-5.62)	(-4.17)	(-8.78)	(-7.54)	(-8.50)	(-7.95)	(-7.37)
Constant	6.040***	5.903***	5.718***	5.718***	5.723***	5.723***	5.890***
	(79.07)	(124.94)	(110.44)	(79.24)	(110.40)	(96.83)	(74.64)
Fixed effects	Year	Year	Year	Year	Quarter	Quarter	Year, Industry

	Firm	Firm	Firm	Firm, Year	Firm	Firm, Quarter	Firm
Clustered SE							
Observations	292,488	292,488	584,976	584,976	584,976	584,976	584,976
Adjusted R-squared	0.583	0.700	0.654	0.654	0.658	0.658	0.664

The model specifications in Table A-6 are exactly the same as the model specifications in Table 4, except that the sample in Table A-6 is constructed by an alternative PSM matching method.

Table A-7 Pre-EA versus EA-date Bid-ask Spreads – Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices (PSM)

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]
Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
<i>Panel A: Within Foreign-lister Sample Variation</i>						
EA	0.018 (1.12)	0.009 (0.71)	0.024*** (6.37)	0.037*** (9.59)	0.078*** (12.88)	-0.005 (-0.31)
ReportRequire_low	0.040** (2.19)					
ReportRequire_low*EA	-0.004 (-1.38)					
InvestorProtect_low		0.039*** (3.49)				
InvestorProtect_low*EA		-0.004** (-2.30)				
AnalystFollow_low			0.050*** (14.55)			
AnalystFollow_low*EA			-0.003*** (-6.66)			
InstitutionOwner_low				0.207*** (5.49)		
InstitutionOwner_low*EA				-0.007 (-1.39)		
EAlag_long					0.004*** (8.65)	
EAlag_long*EA					-0.001*** (-6.92)	
EAlag_low						0.082*** (5.79)
EAlag_low*EA						-0.013***

Control Variables	Yes	Yes	Yes	Yes	Yes	(-3.07)
Fixed effects	Year	Year	Year, Country	Year, Country	Year, Country	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm
Observations	288,432	279,048	292,488	292,488	292,488	292,488
Adjusted R-squared	0.584	0.587	0.613	0.613	0.616	0.583

Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
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Panel B: Full Sample Variation

EA	0.074*** (4.54)	0.084*** (6.61)	0.091*** (24.86)	0.056*** (12.05)	0.137*** (31.07)	0.062*** (5.11)
Foreign	0.339*** (13.19)	0.320*** (11.69)	0.361*** (15.27)	0.358*** (15.16)	0.329*** (13.88)	0.362*** (15.31)
Foreign*EA	-0.064*** (-16.09)	-0.065*** (-15.19)	-0.061*** (-15.22)	-0.051*** (-12.85)	-0.057*** (-14.41)	-0.065*** (-16.59)
ReportRequire_low	0.063*** (3.42)					
ReportRequire_low*EA	-0.006** (-1.97)					
InvestorProtect_low		0.051*** (4.91)				
InvestorProtect_low*EA		-0.003* (-1.69)				
AnalystFollow_low			0.036*** (19.25)			
AnalystFollow_low*EA			-0.002*** (-6.05)			
InstitutionOwner_low				0.694*** (17.10)		
InstitutionOwner_low*EA				-0.074*** (-12.56)		
EAlag_long					0.004*** (10.96)	
EAlag_long*EA					-0.001***	

EAfreq_low					(-8.82)	0.082***
						(8.98)
EAfreq_low*EA						-0.012***
						(-3.70)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Year	Year	Year	Year	Year	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm
Observations	580,920	571,536	584,976	584,976	584,976	584,976
Adjusted R-squared	0.655	0.658	0.654	0.654	0.656	0.654

The model specifications in Table A-7 are exactly the same as the model specifications in Table 5, except that the sample in Table A-7 is constructed by an alternative PSM matching method.

Table A-8 Pre-EA versus Post-EA Bid-ask Spreads (PSM)

Column:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]
Sample:	Foreign Lister	Domestic Lister	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample
Post	-0.019*** (-9.83)	-0.007*** (-3.67)	-0.012*** (-6.65)	-0.012*** (-3.34)	-0.010*** (-5.64)	-0.010* (-1.88)	-0.012*** (-6.72)
Foreign			0.356*** (15.12)	0.356*** (13.44)	0.362*** (15.38)	0.362*** (14.80)	0.387*** (17.04)
Foreign*Post			-0.008*** (-2.93)	-0.008* (-2.04)	-0.008*** (-2.87)	-0.008* (-1.90)	-0.007*** (-2.78)
Price	-0.017*** (-17.07)	-0.010*** (-28.21)	-0.012*** (-31.66)	-0.012*** (-10.68)	-0.012*** (-31.40)	-0.012*** (-18.35)	-0.012*** (-32.14)
Turnover	0.000* (1.81)	-0.002*** (-13.16)	0.000*** (2.84)	0.000* (2.10)	-0.001*** (-8.35)	-0.001*** (-7.59)	0.000*** (2.81)
AbsSUE	-0.000*** (-3.92)	0.411*** (14.81)	-0.000*** (-2.70)	-0.000*** (-3.10)	-0.000* (-1.79)	-0.000** (-2.30)	-0.000*** (-2.63)
AbsAbret	0.276*** (3.09)	0.358*** (5.26)	0.216*** (3.71)	0.216* (2.05)	0.166*** (2.91)	0.166** (2.56)	0.199*** (3.55)
AnalystFollowing	-0.057*** (-16.30)	-0.015*** (-10.41)	-0.035*** (-18.82)	-0.035*** (-15.87)	-0.034*** (-18.49)	-0.034*** (-17.47)	-0.032*** (-17.64)
InstitutionalOwnership	-0.041* (-1.66)	-1.332*** (-37.79)	-0.690*** (-17.16)	-0.690*** (-14.21)	-0.674*** (-16.74)	-0.674*** (-16.12)	-0.630*** (-16.29)
PriorQuarterVolatility	1.068 (1.40)	0.178 (0.71)	0.504* (1.66)	0.504 (0.97)	13.132*** (8.73)	13.132*** (6.15)	0.424 (1.51)
PriorQuarterTurnover	0.000 (1.25)	-0.002*** (-8.95)	-0.000 (-0.52)	-0.000 (-0.51)	-0.001*** (-6.18)	-0.001*** (-6.03)	-0.000 (-0.99)
TotalAssets	-0.265*** (-27.26)	-0.281*** (-41.78)	-0.257*** (-36.32)	-0.257*** (-30.18)	-0.258*** (-36.00)	-0.258*** (-33.55)	-0.293*** (-40.34)
EAfreq	-0.077*** (-5.49)	-0.030*** (-3.90)	-0.077*** (-8.60)	-0.077*** (-7.51)	-0.079*** (-8.89)	-0.079*** (-8.46)	-0.072*** (-8.38)
Constant	6.034*** (78.76)	5.890*** (125.41)	5.712*** (110.28)	5.712*** (84.63)	5.709*** (108.27)	5.709*** (99.58)	5.883*** (115.34)

Fixed effects	Year	Year	Year	Year	Quarter	Quarter	Year, Industry
Clustered SE	Firm	Firm	Firm	Firm, Year	Firm	Firm, Quarter	Firm
Observations	438,732	438,732	877,464	877,464	877,464	877,464	877,464
Adjusted R-squared	0.587	0.707	0.659	0.659	0.666	0.666	0.669

The model specifications in Table A-8 are exactly the same as the model specifications in Table 6, except that the sample in Table A-8 is constructed by an alternative PSM matching method.

Table A-9 Pre-EA versus Post-EA Bid-ask Spreads - Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices (PSM)

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]
Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
<i>Panel A: Within Foreign-lister Sample Variation</i>						
Post	-0.068*** (-5.89)	-0.050*** (-5.31)	-0.024*** (-8.93)	-0.021*** (-9.52)	0.001 (0.15)	-0.055*** (-5.70)
ReportRequire_low	0.040** (2.20)					
ReportRequire_low* Post	-0.009*** (-4.38)					
InvestorProtect_low		0.039*** (3.52)				
InvestorProtect_low* Post		-0.004*** (-3.33)				
AnalystFollow_low			0.049*** (14.46)			
AnalystFollow_low* Post			-0.001*** (-3.04)			
InstitutionOwner_low				0.208*** (5.55)		
InstitutionOwner_low* Post				-0.003* (-1.75)		
EAlag_long					0.005*** (8.74)	
EAlag_long* Post					-0.000*** (-4.89)	
EAFreq_low						0.082*** (5.79)
EAFreq_low*EA						-0.010***

Control Variables	Yes	Yes	Yes	Yes	Yes	(-3.75)
Fixed effects	Year	Year	Year, Country	Year, Country	Year, Country	Yes
Clustered SE	Firm	Firm	Firm	Firm	Firm	Year
Observations	432,648	418,572	438,732	438,732	438,732	Firm
Adjusted R-squared	0.588	0.591	0.617	0.617	0.620	438,732

Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
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Panel B: Full Sample Variation

Post	-0.049*** (-4.35)	-0.049*** (-5.47)	-0.023*** (-8.79)	-0.016*** (-5.50)	0.001 (0.38)	-0.049*** (-5.95)
Foreign	0.333*** (13.01)	0.312*** (11.48)	0.354*** (15.04)	0.355*** (15.09)	0.323*** (13.69)	0.355*** (15.08)
Foreign*Post	-0.005* (-1.88)	-0.003 (-1.17)	-0.003 (-1.24)	-0.007** (-2.38)	-0.004 (-1.30)	-0.006** (-2.25)
ReportRequire_low	0.062*** (3.38)					
ReportRequire_low*Post	-0.007*** (-3.30)					
InvestorProtect_low		0.052*** (5.01)				
InvestorProtect_low*Post		-0.005*** (-4.15)				
AnalystFollow_low			0.035*** (19.08)			
AnalystFollow_low*Post			-0.001*** (-7.01)			
InstitutionOwner_low				0.693*** (17.12)		
InstitutionOwner_low*Post				-0.007** (-1.97)		
EAlag_long					0.004*** (10.86)	
EAlag_long*Post					-0.000***	

EAFreq_low						(-4.98)	0.082*** (9.03)
EAFreq_low*EA							-0.010*** (-4.63)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Year	Year	Year	Year	Year	Year	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Observations	871,380	857,304	877,464	877,464	877,464	877,464	877,464
Adjusted R-squared	0.661	0.664	0.659	0.659	0.661	0.659	0.659

The model specifications in Table A-9 are exactly the same as the model specifications in Table 7, except that the sample in Table A-9 is constructed by an alternative PSM matching method.

2.3 Entropy Balancing Method (EBM)

I also match domestic firm-quarters to foreign firm-quarters using the Entropy Balancing Method (EBM). Following McMullin and Schonberger (2022), I trimmed observations with extreme propensity scores (≤ 0.05 or ≥ 0.95). By using the EBM, the domestic lister sample and the foreign lister sample have the exact same mean and variation for all the control variables in Equation (1.1).

The results are generally consistent with the results in Table 4 to Table 7. Similar to the first and second alternative matching methods, EBM makes the coefficient on *Foreign*Post* in Table A-13 Panel B become insignificant in Columns (2) to (6). However, one major difference in the results between EBM and the other alternative matching methods is that the *Foreign*Post* in Table A-12 becomes insignificant. One potential explanation is that the coefficients on *Foreign*Post* in the Pre-EA versus Post-EA analyses are generally less statistical significant than the coefficients on *Foreign*EA* in the EA-date analyses. Thus, by using the more rigorous EBM technique (which removes all the differences in the covariate distribution between foreign and domestic lister samples), the coefficients on *Foreign*Post* are no longer significant.

Table A-10 Pre-EA versus EA-date Bid-ask Spreads (EBM)

Column:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]
Sample:	Foreign Lister	Domestic Lister	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample
EA	0.040*** (15.28)	0.122*** (98.92)	0.119*** (97.24)	0.119*** (17.89)	0.118*** (97.02)	0.118*** (26.02)	0.118*** (17.87)
Foreign			0.183*** (7.79)	0.183*** (5.43)	0.184*** (7.86)	0.184*** (6.90)	0.363*** (11.21)
Foreign*EA			-0.067*** (-23.01)	-0.067*** (-9.52)	-0.067*** (-23.06)	-0.067*** (-14.04)	-0.065*** (-9.62)
Price	-0.014*** (-14.70)	-0.000 (-0.37)	-0.000 (-0.49)	-0.000 (-0.48)	-0.000 (-0.42)	-0.000 (-0.42)	-0.000 (-0.23)
Turnover	-0.000 (-0.25)	-0.002*** (-30.80)	-0.002*** (-28.85)	-0.002*** (-14.06)	-0.002*** (-28.16)	-0.002*** (-20.38)	-0.002*** (-14.64)
AbsSUE	-0.000*** (-8.40)	0.612*** (40.25)	0.000*** (2.91)	0.000*** (4.00)	0.000** (2.47)	0.000*** (6.13)	0.000*** (4.55)
AbsAbret	0.408*** (4.20)	0.356*** (10.36)	0.457*** (13.44)	0.457*** (3.72)	0.328*** (9.74)	0.328*** (5.64)	0.580*** (5.91)
AnalystFollowing	-0.055*** (-15.21)	-0.044*** (-34.20)	-0.048*** (-38.16)	-0.048*** (-30.92)	-0.048*** (-38.04)	-0.048*** (-34.86)	-0.038*** (-24.08)
InstitutionalOwnership	-0.046* (-1.85)	-1.773*** (-69.29)	-1.660*** (-67.15)	-1.660*** (-34.29)	-1.653*** (-66.92)	-1.653*** (-50.29)	-1.400*** (-31.18)
PriorQuarterVolatility	5.976*** (3.97)	28.082*** (22.83)	36.886*** (28.68)	36.886*** (6.87)	46.040*** (31.30)	46.040*** (11.82)	40.465*** (7.68)
PriorQuarterTurnover	0.000** (2.27)	-0.005*** (-28.86)	-0.004*** (-27.14)	-0.004*** (-8.00)	-0.005*** (-29.45)	-0.005*** (-13.68)	-0.004*** (-8.39)
TotalAssets	-0.261*** (-25.97)	-0.245*** (-53.91)	-0.240*** (-55.60)	-0.240*** (-31.34)	-0.239*** (-55.58)	-0.239*** (-44.16)	-0.311*** (-33.85)
EAfreq	-0.074*** (-5.06)	-0.064*** (-19.24)	-0.073*** (-19.38)	-0.073*** (-7.64)	-0.069*** (-18.36)	-0.069*** (-12.54)	-0.079*** (-9.60)
Constant	5.923*** (73.30)	6.081*** (214.78)	6.039*** (210.11)	6.039*** (106.40)	6.018*** (208.81)	6.018*** (156.74)	6.294*** (95.36)
Fixed effects	Year	Year	Year	Year	Quarter	Quarter	Year, Industry

Clustered SE	Firm	Firm	Firm	Firm, Year	Firm	Firm, Quarter	Firm
Observations	263,460	1,860,456	2,123,916	2,123,916	2,123,916	2,123,916	2,123,916
Adjusted R-squared	0.587	0.664	0.648	0.648	0.653	0.653	0.670

The model specifications in Table A-10 are exactly the same as the model specifications in Table 4, except that the sample in Table A-10 is constructed by an alternative EBM matching method.

Table A-11 Pre-EA versus EA-date Bid-ask Spreads – Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices (EBM)

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]
Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
<i>Panel A: Within Foreign-lister Sample Variation</i>						
EA	0.019 (1.26)	0.018 (1.54)	0.026*** (7.60)	0.035*** (8.87)	0.078*** (13.80)	-0.006 (-0.44)
ReportRequire_low	0.048** (2.50)					
ReportRequire_low*EA	-0.004 (-1.39)					
InvestorProtect_low		0.041*** (3.48)				
InvestorProtect_low*EA		-0.003* (-1.74)				
AnalystFollow_low			0.050*** (13.81)			
AnalystFollow_low*EA			-0.003*** (-6.33)			
InstitutionOwner_low				0.142*** (3.15)		
InstitutionOwner_low*EA				-0.011* (-1.85)		
EAlag_long					0.005*** (9.74)	
EAlag_long*EA					-0.001*** (-7.29)	
EAlag_low						0.077*** (5.23)
EAlag_low*EA						-0.013***

(-3.46)

Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Year	Year	Year, Country	Year, Country	Year, Country	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm
Observations	259,608	250,452	263,460	263,460	263,460	263,460
Adjusted R-squared	0.589	0.592	0.613	0.613	0.616	0.587

Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
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Panel B: Full Sample Variation

EA	0.074*** (6.27)	0.154*** (20.40)	0.091*** (58.35)	0.044*** (21.69)	0.162*** (68.38)	0.039*** (6.90)
Foreign	0.147*** (5.62)	0.130*** (4.70)	0.181*** (7.71)	0.178*** (7.55)	0.171*** (7.30)	0.182*** (7.75)
Foreign*EA	-0.063*** (-21.27)	-0.073*** (-22.73)	-0.059*** (-20.97)	-0.045*** (-15.61)	-0.055*** (-18.95)	-0.063*** (-21.88)
ReportRequire_low	0.102*** (5.01)					
ReportRequire_low*EA	-0.008*** (-3.88)					
InvestorProtect_low		0.060*** (5.44)				
InvestorProtect_low*EA		0.004*** (4.72)				
AnalystFollow_low			0.049*** (38.47)			
AnalystFollow_low*EA			-0.004*** (-24.18)			
InstitutionOwner_low				1.690*** (67.92)		
InstitutionOwner_low*EA				-0.121*** (-39.67)		
EAlag_long					0.001*** (4.73)	

EAlag_long*EA					-0.001***	
					(-22.00)	
Eafreq_low						0.079***
						(20.44)
Eafreq_low*EA						-0.022***
						(-14.32)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Year	Year	Year	Year	Year	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm
Observations	2,120,064	2,110,908	2,123,916	2,123,916	2,123,916	2,123,916
Adjusted R-squared	0.648	0.649	0.648	0.648	0.648	0.648

The model specifications in Table A-11 are exactly the same as the model specifications in Table 5, except that the sample in Table A-11 is constructed by an alternative EBM matching method.

Table A-12 Pre-EA versus Post-EA Bid-ask Spreads (EBM)

Column:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var.:	Daily	Daily	Daily	Daily	Daily	Daily	Daily
	LnSpread	LnSpread	LnSpread	LnSpread	LnSpread	LnSpread	LnSpread
Days relative to the EA date:	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]
Sample:	Foreign Lister	Domestic Lister	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample
Post	-0.019*** (-10.69)	-0.013*** (-18.61)	-0.014*** (-21.39)	-0.014*** (-3.04)	-0.014*** (-21.26)	-0.014** (-2.60)	-0.015*** (-21.97)
Foreign			0.181*** (7.71)	0.181*** (5.42)	0.182*** (7.79)	0.182*** (6.86)	0.359*** (15.29)
Foreign*Post			-0.003 (-1.47)	-0.003 (-0.66)	-0.003 (-1.48)	-0.003 (-0.70)	-0.002 (-1.10)
Price	-0.014*** (-15.13)	-0.000 (-0.39)	-0.000 (-0.51)	-0.000 (-0.50)	-0.000 (-0.44)	-0.000 (-0.44)	-0.000 (-0.29)
Turnover	0.000** (2.50)	-0.004*** (-30.92)	-0.003*** (-26.08)	-0.003*** (-11.41)	-0.003*** (-26.15)	-0.003*** (-17.61)	-0.003*** (-25.23)
AbsSUE	-0.000*** (-6.02)	0.639*** (41.85)	0.000*** (3.10)	0.000*** (3.80)	0.000** (2.41)	0.000*** (5.72)	0.000** (2.54)
AbsAbret	0.348*** (3.73)	0.338*** (9.82)	0.427*** (12.50)	0.427*** (3.46)	0.295*** (8.76)	0.295*** (4.87)	0.552*** (17.54)
AnalystFollowing	-0.055*** (-15.14)	-0.043*** (-33.57)	-0.047*** (-37.58)	-0.047*** (-30.40)	-0.047*** (-37.44)	-0.047*** (-34.19)	-0.038*** (-30.44)
InstitutionalOwnership	-0.046* (-1.85)	-1.794*** (-69.99)	-1.683*** (-67.89)	-1.683*** (-35.08)	-1.674*** (-67.59)	-1.674*** (-51.06)	-1.424*** (-58.70)
PriorQuarterVolatility	6.540*** (4.28)	27.790*** (24.19)	37.500*** (29.04)	37.500*** (6.98)	47.381*** (32.00)	47.381*** (12.21)	40.802*** (31.80)
PriorQuarterTurnover	0.000 (1.40)	-0.005*** (-28.29)	-0.004*** (-27.02)	-0.004*** (-7.89)	-0.004*** (-29.38)	-0.004*** (-13.61)	-0.004*** (-27.09)
TotalAssets	-0.259*** (-25.87)	-0.246*** (-54.14)	-0.241*** (-55.58)	-0.241*** (-32.01)	-0.240*** (-55.54)	-0.240*** (-44.46)	-0.311*** (-60.47)
EAfreq	-0.072*** (-4.99)	-0.064*** (-19.26)	-0.073*** (-19.35)	-0.073*** (-7.62)	-0.070*** (-18.55)	-0.070*** (-12.50)	-0.079*** (-21.93)
Constant	5.918*** (73.15)	6.102*** (215.46)	6.058*** (209.55)	6.058*** (109.94)	6.039*** (208.37)	6.039*** (159.46)	6.311*** (195.67)

Fixed effects	Year	Year	Year	Year	Quarter	Quarter	Year, Industry
Clustered SE	Firm	Firm	Firm	Firm, Year	Firm	Firm, Quarter	Firm
Observations	395,190	2,790,684	3,185,874	3,185,874	3,185,874	3,185,874	3,185,874
Adjusted R-squared	0.652	0.652	0.657	0.657	0.674	0.666	0.669

The model specifications in Table A-12 are exactly the same as the model specifications in Table 6, except that the sample in Table A-12 is constructed by an alternative EBM matching method.

Table A-13 Pre-EA versus Post-EA Bid-ask Spreads - Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices (EBM)

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]
Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
<i>Panel A: Within Foreign-lister Sample Variation</i>						
Post	-0.067*** (-6.20)	-0.040*** (-4.71)	-0.024*** (-10.09)	-0.021*** (-9.96)	0.000 (0.01)	-0.051*** (-5.63)
ReportRequire_low	0.047** (2.49)					
ReportRequire_low* Post	-0.009*** (-4.61)					
InvestorProtect_low		0.041*** (3.50)				
InvestorProtect_low* Post		-0.003** (-2.52)				
AnalystFollow_low			0.049*** (13.74)			
AnalystFollow_low* Post			-0.001*** (-3.66)			
InstitutionOwner_low				0.143*** (3.19)		
InstitutionOwner_low* Post				-0.004* (-1.85)		
EAlag_long					0.005*** (9.82)	
EAlag_long* Post					-0.000*** (-5.14)	
EAFreq_low						0.077*** (5.24)
EAFreq_low*EA						-0.009***

Control Variables	Yes	Yes	Yes	Yes	Yes	(-3.55)
Fixed effects	Year	Year	Year, Country	Year, Country	Year, Country	Yes
Clustered SE	Firm	Firm	Firm	Firm	Firm	Year
Observations	389,412	375,678	395,190	395,190	395,190	Firm
Adjusted R-squared	0.584	0.587	0.613	0.613	0.616	395,190

Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
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Panel B: Full Sample Variation

Post	0.012 (1.52)	-0.057*** (-11.25)	-0.025*** (-24.84)	-0.020*** (-13.42)	-0.005*** (-3.00)	-0.051*** (-12.17)
Foreign	0.147*** (5.64)	0.124*** (4.50)	0.179*** (7.65)	0.180*** (7.68)	0.170*** (7.26)	0.180*** (7.68)
Foreign*Post	-0.005** (-2.40)	0.003 (1.36)	0.000 (0.03)	-0.002 (-0.78)	-0.000 (-0.04)	-0.001 (-0.60)
ReportRequire_low	0.095*** (4.66)					
ReportRequire_low*Post	0.005*** (3.33)					
InvestorProtect_low		0.064*** (5.73)				
InvestorProtect_low*Post		-0.005*** (-8.44)				
AnalystFollow_low			0.048*** (38.01)			
AnalystFollow_low*Post			-0.001*** (-16.92)			
InstitutionOwner_low				1.687*** (67.82)		
InstitutionOwner_low*Post				-0.009*** (-4.46)		
EAlag_long					0.001*** (4.43)	
EAlag_long*Post					-0.000***	

EAfreq_low					(-6.96)	0.078*** (20.41)
EAfreq_low*EA						-0.010*** (-8.92)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Year	Year	Year	Year	Year	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm
Observations	3,180,096	3,166,362	3,185,874	3,185,874	3,185,874	3,185,874
Adjusted R-squared	0.652	0.653	0.652	0.652	0.652	0.652

The model specifications in Table A-13 are exactly the same as the model specifications in Table 7, except that the sample in Table A-13 is constructed by an alternative EBM matching method.

Figure 1 Home Country Distributions in Foreign Lister Sample

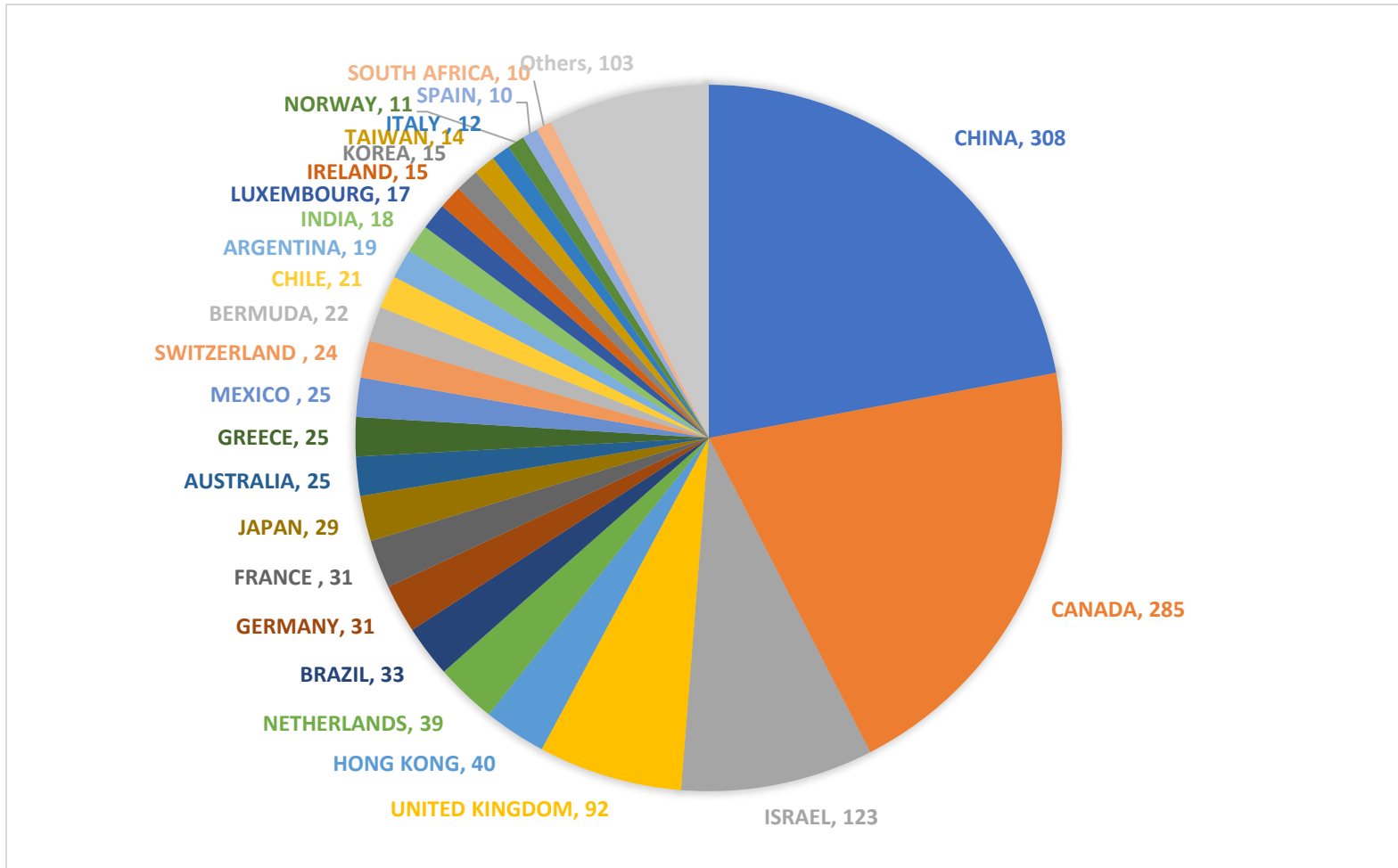


Figure 1 Home Country Distributions in Foreign Lister Sample

Figure 2 Trading Volumes surrounding the EA window

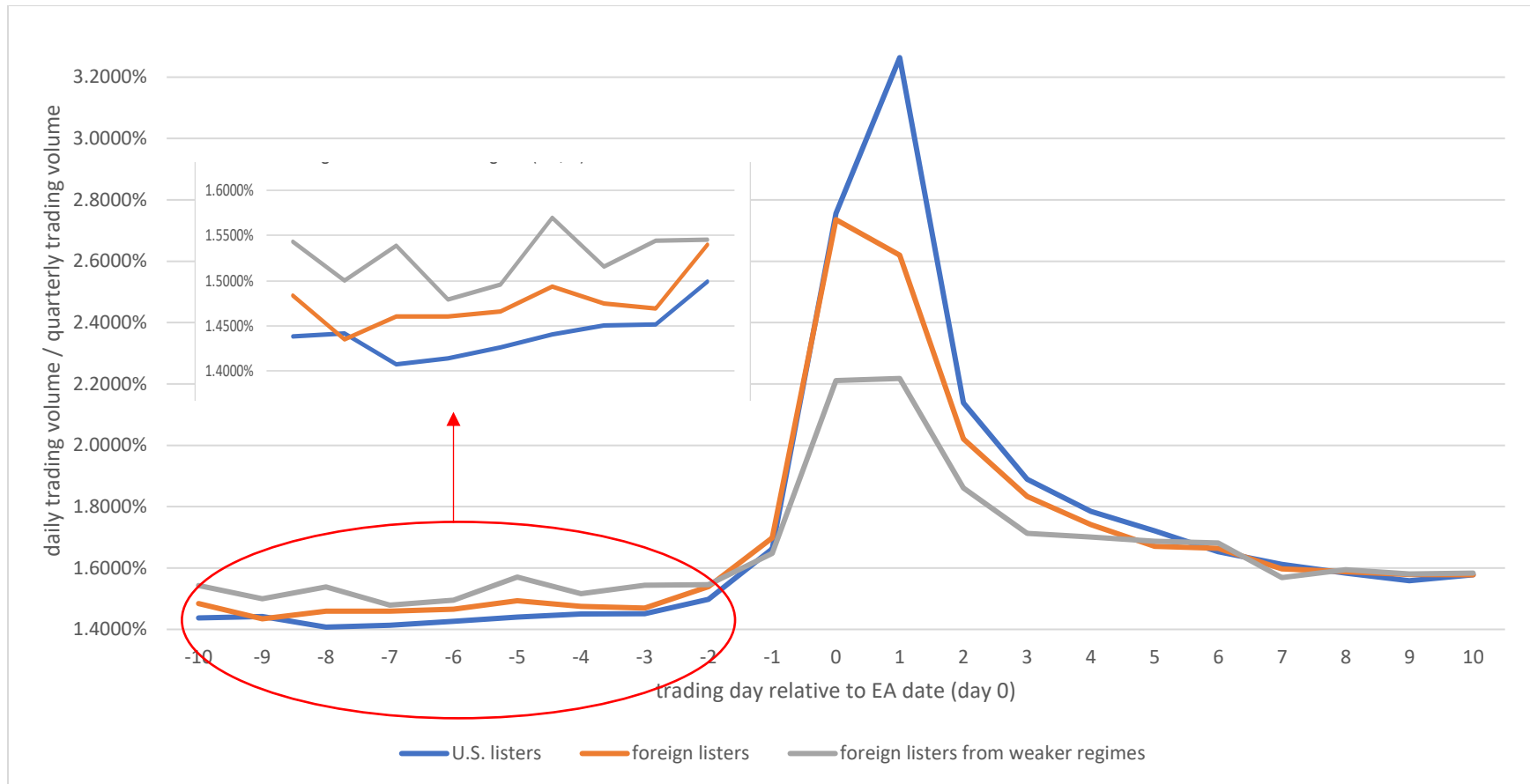


Figure 2 Trading Volumes surrounding the EA Window

Figure 3 Bid-ask Spreads surrounding the EA window

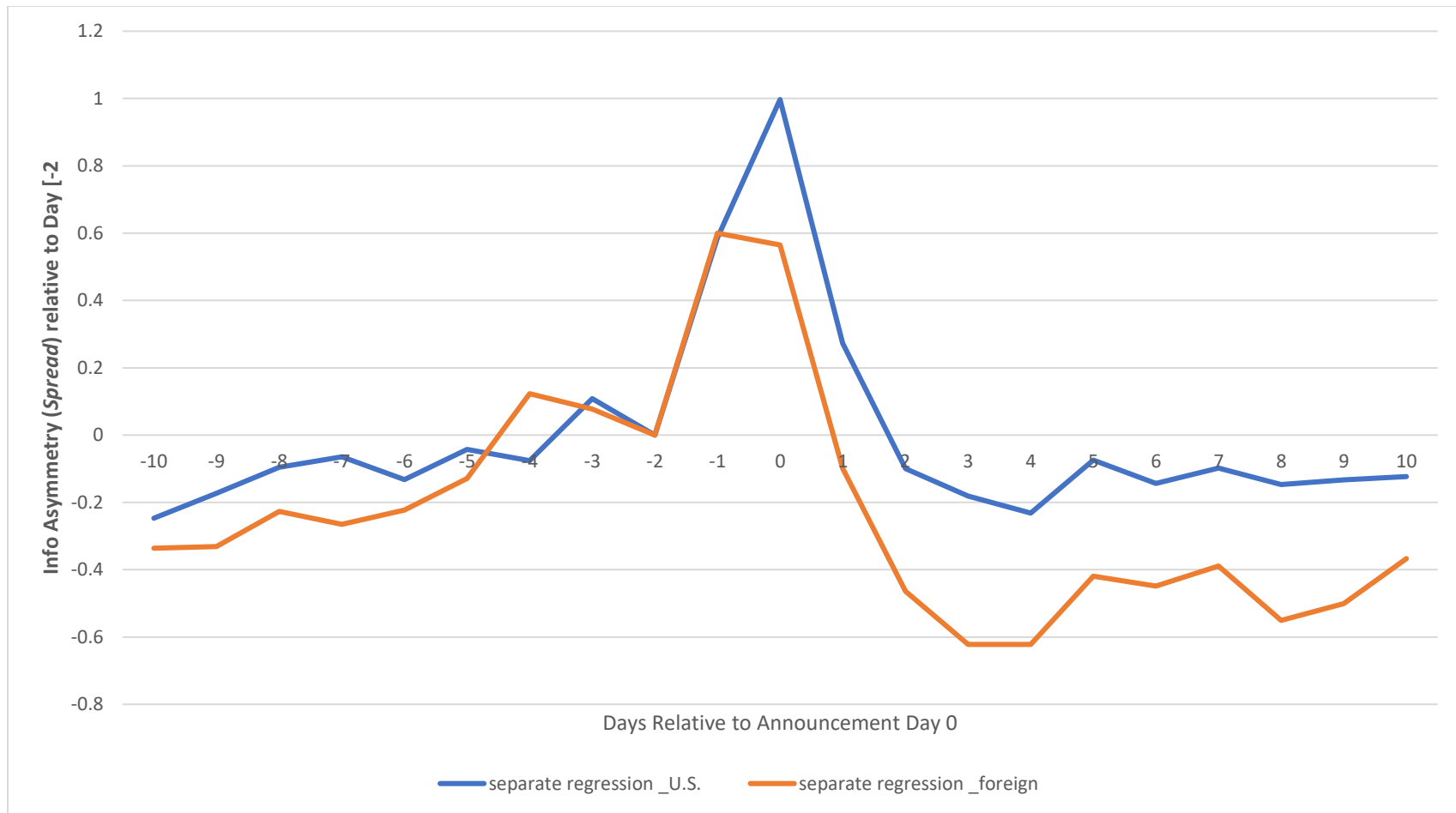


Figure 3 Bid-ask Spreads surrounding the EA Window

Figure 3 An Example of the SEC Checklist Paragraph at the Beginning of a 6-K Form

**FORM 6-K
UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

Report of Foreign Private Issuer

**Pursuant to Rule 13a-16 or 15d-16
of the Securities Exchange Act of 1934**

For the month of November, 2006

QSound Labs, Inc.
(Translation of Registrant's Name into English)

400 – 3115 12 Street N.E.
Calgary, Alberta Canada T2E 7J2
(Address of principal executive offices)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F:

Form 20-F Form 40-F

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101 (b) (1):

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101 (b) (7):

Indicate by check mark by furnishing the information contained in this Form the registrant is also thereby furnishing the information to the Commission pursuant to rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes No

If "Yes " is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): Not applicable

Figure 4 An Example of the SEC Checklist paragraph at the Beginning of a 6-K Form

Figure 4 An Example of a 6-K Filing that Includes its EA in the 6-K Form



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U.S. Securities and Exchange Commission

Filing Detail

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Form 6-K - Report of foreign issuer [Rules 13a-16 and 15d-16]: **SEC Accession No.** 0000849314-05-000007

Filing Date 2005-05-16	Period of Report 2005-05-16		
Accepted 2005-05-16 08:00:21			
Documents 1			

Document Format Files

Seq	Description	Document	Type	Size
1	PRESS RELEASE	interimrep.htm	6-K	33351
	Complete submission text file	0000849314-05-000007.txt		34804

BENETTON GROUP SPA (Filer) CIK: 0000849314 (see all company filings)

IRS No.: 000000000 State of Incorpor.: L6 Fiscal Year End: 1231 Type: 6-K Act: 34 File No.: 001-10230 Film No.: 05831394 SIC: 2330 Women's, Misses', and Juniors Outerwear Office of Manufacturing	Business Address VIA VILLA NINELLI, 1 31040 PONZANO V (TV) ITALY L6 00000 390422519272	Mailing Address VIA VILLA NINELLI, 1 31040 PONZANO V (TV) ITALY L6 00000
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Figure 5 An Example of a 6-K Filing that Includes its EA in the 6-K Form

Figure 5 An Example of a 6-K Filing that Includes its EA in the First exhibit



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U.S. Securities and Exchange Commission

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Form 6-K - Report of foreign issuer [Rules 13a-16 and 15d-16]: **SEC Accession No.** 0001137171-06-002060

Filing Date 2006-11-13	Period of Report 2006-11-10		
Accepted 2006-11-13 12:45:49			
Documents 5			

Document Format Files

Seq	Description	Document	Type	Size
1	QSOUND LABS INC. FORM 6-K	qsound6k111306a.htm	6-K	4805
2	NEWS RELEASE	newsrelease.htm	EX-99.1	12229
3	FINANCIALS	financials.htm	EX-99.2	86278
4		qsoundfooter.jpg	GRAPHIC	8522
5		qsoundlogo.jpg	GRAPHIC	6700
	Complete submission text file	0001137171-06-002060.txt		126098

<p>QSOUND LABS INC (Filer) CIK: 0000840518 (see all company filings)</p> <p>IRS No.: 000000000 Fiscal Year End: 1231 Type: 6-K Act: 34 File No.: 000-17212 Film No.: 061207134 SIC: 6794 Patent Owners & Lessors Office of Real Estate & Construction</p>	<p>Business Address 400-3115 12 STREET NE CALGARY A0 T2E7J2 403 291 2492</p>	<p>Mailing Address 400-3115 12 STREET NE CALGARY A0 T2E7J2</p>
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Figure 6 An Example of a 6-K Filing that Includes its EA in the First Exhibit

Table 1 Sample Selection

	Foreign filers #	Foreign Firm-EAs#
6-K filers announced earnings from 2005 to 2021 with effective links to CRSP	1,644	40,407
Exclude: halted/suspended/none trading firms and firms not listed on the three main exchanges	-	(66)
Exclude: firm-quarters missing net income or having missing or negative total assets/revenue	(2)	(942)
Exclude: filers whose headquarter/incorporation country has been the U.S. during the sample period	(138)	(2,080)
Exclude: filers that have changed their filing to 8-Ks, 10-Ks, or 10-Qs during the sample period	(107)	(2,193)
Foreign filers to merge with IBES data and CRSP daily data	1,397	35,126
Exclude: firm-quarters that missing SUE1	(34)	(996)
Exclude: firm-quarters that the difference in EA date recorded by Compustat and IBES is greater than 1	-	(1,062)
Exclude: firm-quarters that have a share price <= \$1 or have a market capitalization <= \$5 million	(17)	(2,667)
Exclude: firm-quarters that missing other main variables	(60)	(2,238)
Exclude: firm-quarters that missing daily observations in the [-10, +10] EA window	(1)	(48)
Exclude: foreign firm-quarters that cannot be matched with comparable domestic firm-quarters	-	(309)
Final Foreign EA Sample	1,285	27,806

Table 1 Sample Selection

Table 2 Descriptive Statistics*Panel A 6-K domestic listers: 27,806 firm-quarters; 583,926 daily observations*

	n	Mean	Std	p1	p25	Median	p75	p99
Spread (original value in basis points)	583,926	66.983	123.352	1.09457	7.59607	20.574	63.898	713.073
Price	583,926	22.597	29.902	0.540	4.730	12.160	29.390	151.030
Turnover	583,926	11.087	18.098	0.015	1.677	4.949	12.033	106.321
absSUE	27,806	0.041	0.097	0.000	0.004	0.011	0.032	0.681
AbsAbret	27,806	0.055	0.056	0.001	0.016	0.037	0.074	0.292
AnalystFollowing	27,806	5.415	6.278	0	1	3	8	28
InstitutionalOwnership	27,806	0.484	0.377	0.000	0.177	0.450	0.706	1.783
PriorQuarterVolatility	27,806	0.001	0.002	0.000	0.000	0.001	0.001	0.010
PriorQuarterTurnover	27,806	11.742	18.438	0.166	2.329	5.867	12.664	109.710
TotalAssets	27,806	7.587	2.515	2.468	5.692	7.472	9.275	13.665
EAFreq	27,806	3.493	0.694	1	3	4	4	4
EAlag	27,806	46.195	19.787	17	33	42	54	117

Panel B 8-K domestic listers: 27,806 firm-quarters; 583,926 daily observations

	n	Mean	Std	p1	p25	Median	p75	p99
Spread (original value in basis points)	583,926	41.228	97.748	0.58381	3.28253	8.75294	28.598	588.469
Price	583,926	40.029	46.160	0.760	10.690	25.130	51.040	242.930
Turnover	583,926	9.766	12.783	0.033	3.196	6.190	11.364	71.204
absSUE	27,806	0.030	0.088	0.000	0.002	0.006	0.018	0.622
AbsAbret	27,806	0.055	0.058	0.001	0.016	0.036	0.073	0.300
AnalystFollowing	27,806	10.246	8.831	0	3	8	16	35
InstitutionalOwnership	27,806	0.651	0.295	0.004	0.455	0.727	0.877	1.137
PriorQuarterVolatility	27,806	0.001	0.002	0.000	0.000	0.000	0.001	0.009
PriorQuarterTurnover	27,806	9.465	11.231	0.338	3.881	6.776	11.099	60.471
TotalAssets	27,806	7.518	2.267	2.483	5.922	7.497	9.100	12.798
EAFreq	27,806	3.677	0.494	3	3	4	4	4
EAlag	27,806	34.510	13.253	16	26	33	39	84

Table 2 Descriptive Statistics

Table 2 Panel A presents the distribution of variables of the foreign-listed sample. According to Table 1, there are 1,285 foreign firms and 27,806 foreign firm-quarters in my sample. Panel B presents the distribution of variables of the domestic-listed sample. There are 27,806 domestic firm-quarters matched with foreign firm-quarters on the basis of the sign of the earnings surprise, the calendar quarter to which the EA relates, and the closest market capitalization with a +/- 10% range. For daily variables (i.e., *Spread*, *Price* and *Turnover*), their distributions are calculated based on daily observations within the [-10, +10] window surrounding the EA date. Specifically, *Spread* is shown in basis points so that the distribution can be compared with previous literature. All other variables are quarterly basis and are calculated based on 27,806 firm-quarter observations in the foreign-listed sample and the domestic-listed sample, respectively.

Table 3 Correlation Table

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) LnSpread	1													
(2) EA	0.019 <i>0.000</i>	1												
(3) Foreign	0.241 <i>0.000</i>	0	1											
(4) price	-0.023 <i>0.000</i>	0	-0.019	1										
(5) Turnover	0 <i>-0.930</i>	0.008	0.014	-0.001	1									
(6) abssue	0.005 <i>0.000</i>	0	0.010	0	0.002	1								
(7) AbsAbret	0.122 <i>0.000</i>	0	-0.001	-0.008	0.026	0.002	1							
(8) AnalystFollowing	-0.570 <i>0.000</i>	0	-0.298	0.015	-0.001	-0.008	-0.039	1						
(9) InstitutionalOwnership	-0.232 <i>0.000</i>	0	-0.070	0.002	0.214	-0.005	-0.019	0.167	1					
(10) PriorQuarterVolatility	0.073 <i>0.000</i>	0	0.018	-0.003	0.006	0.028	0.034	-0.044	-0.025	1				
(11) PriorQuarterTurnover	0.002 <i>-0.024</i>	0	0.023	-0.001	0.629	0.028	0.013	-0.001	0.382	0.045	1			
(12) TotalAssets	-0.605 <i>0.000</i>	0	0.015	0.034	0.011	-0.004	-0.191	0.443	0.209	-0.075	0.010	1		
(13) EAFreq	-0.080 <i>0.000</i>	0	-0.163	0.003	-0.005	0.002	0	0.133	0.026	-0.031	-0.014	-0.009	1	
(13) EAlag	0.327 <i>0.000</i>	0	0.299	-0.013	0.025	0.005	0.093	-0.301	-0.09	0.057	0.035	-0.281	-0.334	1

Table 3 Correlation Table

Table 4 Pre-EA versus EA-date Bid-ask Spreads

Column:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var.:	Daily	Daily	Daily	Daily	Daily	Daily	Daily
Days relative to the EA date:	LnSpread	LnSpread	LnSpread	LnSpread	LnSpread	LnSpread	LnSpread
Sample:	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]
	Foreign Lister	Domestic Lister	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample
EA	0.040***	0.133***	0.130***	0.130***	0.130***	0.130***	0.129***
	(15.15)	(51.20)	(49.45)	(19.23)	(49.50)	(26.99)	(19.06)
Foreign			0.376***	0.376***	0.375***	0.375***	0.516***
			(15.51)	(12.39)	(15.49)	(14.16)	(16.20)
Foreign*EA			-0.083***	-0.083***	-0.084***	-0.084***	-0.081***
			(-22.85)	(-11.58)	(-22.86)	(-16.33)	(-11.62)
Price	-0.014***	0.000	-0.000	-0.000	0.000	0.000	-0.000
	(-14.93)	(0.16)	(-0.07)	(-0.07)	(0.01)	(0.01)	(-0.28)
Turnover	-0.000	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(-0.29)	(-13.13)	(-8.39)	(-5.81)	(-8.70)	(-7.27)	(-6.16)
AbsSUE	-0.000***	0.580***	-0.000**	-0.000***	-0.000**	-0.000***	-0.000
	(-8.19)	(14.94)	(-2.00)	(-3.24)	(-1.98)	(-3.66)	(-1.65)
AbsAbret	0.394***	0.530***	0.539***	0.539***	0.396***	0.396***	0.609***
	(4.07)	(7.51)	(8.67)	(4.84)	(6.39)	(5.64)	(6.54)
AnalystFollowing	-0.056***	-0.036***	-0.049***	-0.049***	-0.049***	-0.049***	-0.040***
	(-15.67)	(-23.36)	(-25.43)	(-22.27)	(-25.38)	(-24.40)	(-18.93)
InstitutionalOwnership	-0.047*	-1.674***	-0.941***	-0.941***	-0.939***	-0.939***	-0.789***
	(-1.83)	(-50.44)	(-22.30)	(-17.52)	(-22.30)	(-20.62)	(-14.68)
PriorQuarterVolatility	5.729***	46.556***	36.678***	36.678***	44.828***	44.828***	35.424***
	(3.88)	(13.39)	(14.08)	(5.70)	(15.38)	(9.26)	(5.56)
PriorQuarterTurnover	0.000**	-0.005***	-0.002***	-0.002***	-0.002***	-0.002***	-0.002***
	(2.26)	(-13.86)	(-8.86)	(-5.51)	(-9.24)	(-7.88)	(-5.44)
TotalAssets	-0.261***	-0.251***	-0.259***	-0.259***	-0.258***	-0.258***	-0.311***
	(-26.08)	(-40.91)	(-34.71)	(-27.54)	(-34.65)	(-32.19)	(-28.53)
EAfreq	-0.071***	-0.064***	-0.080***	-0.080***	-0.077***	-0.077***	-0.085***
	(-4.98)	(-7.78)	(-8.11)	(-6.96)	(-7.82)	(-7.31)	(-8.02)
Constant	5.924***	5.878***	5.646***	5.646***	5.630***	5.630***	5.838***
	(73.84)	(123.79)	(93.51)	(70.51)	(93.17)	(84.47)	(68.20)
Fixed effects	Year	Year	Year	Year	Quarter	Quarter	Year, Industry

Clustered SE	Firm	Firm	Firm	Firm, Year	Firm	Firm, Quarter	Firm
Observations	333,672	333,672	667,344	667,344	667,344	667,344	667,344
Adjusted R-squared	0.586	0.663	0.622	0.622	0.628	0.628	0.639

Table 4 Pre-EA versus EA-date Bid-ask Spreads

Table 4 examines the change in EA-date bid-ask spreads compared to the pre-EA bid-ask spreads using daily observations in the [-10, +1] window surrounding the EA date. Columns (1) and (2) use a sample of 27,806 foreign firm-quarters and a sample of 27,806 matched domestic firm-quarters, respectively. Columns (3) to (7) present the results of regressions with different model specifications using the full sample which contains 27,806 foreign and domestic firm-quarter pairs. Domestic firm-quarters are matched with foreign firm-quarters based on the direction of SUE, calendar quarter and firm size. $LnSpread = \text{Log} [(Ask-Bid)/((Ask+Bid)/2)*10000]$, where Ask and Bid are the CRSP daily closing ask and bid prices. The results in Table 4 are robust to using nonlogarithmic *Spread* as an alternative dependent variable. *EA* equals one if the trading day is -1, 0, or 1 relative to the EA date, zero otherwise. *Foreign* equals one if the firm is a foreign lister, and zero otherwise. All variable definitions are presented in Appendix D. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 5 Pre-EA versus EA-date Bid-ask Spreads – Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]	[-10, +1]
Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
<i>Panel A: Within Foreign-lister Sample Variation</i>						
EA	0.020 (1.32)	0.018 (1.50)	0.026*** (7.38)	0.034*** (8.96)	0.079*** (13.88)	-0.005 (-0.36)
ReportRequire_low	0.047** (2.47)					
ReportRequire_low*EA	-0.004 (-1.31)					
InvestorProtect_low		0.041*** (3.48)				
InvestorProtect_low*EA		-0.003* (-1.75)				
AnalystFollow_low			0.050*** (14.13)			
AnalystFollow_low*EA			-0.003*** (-6.48)			
InstitutionOwner_low				0.163*** (3.57)		
InstitutionOwner_low*EA				-0.011** (-2.00)		
EAlag_long					0.005*** (9.67)	
EAlag_long*EA					-0.001*** (-7.45)	
EAlag_low						0.074*** (5.15)
EAlag_low*EA						-0.013***

Control Variables	Yes	Yes	Yes	Yes	Yes	(-3.35)
Fixed effects	Year	Year	Year, Country	Year, Country	Year, Country	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm
Observations	329,544	319,680	333,672	333,672	333,672	333,672
Adjusted R-squared	0.587	0.590	0.612	0.612	0.615	0.586

Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
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Panel B: Full Sample Variation

EA	0.098*** (6.10)	0.131*** (10.71)	0.101*** (29.20)	0.072*** (16.61)	0.158*** (38.68)	0.071*** (6.13)
Foreign	0.344*** (12.84)	0.329*** (11.37)	0.373*** (15.37)	0.372*** (15.30)	0.340*** (13.78)	0.376*** (15.48)
Foreign*EA	-0.081*** (-21.59)	-0.085*** (-20.78)	-0.070*** (-18.68)	-0.065*** (-17.41)	-0.071*** (-18.91)	-0.081*** (-22.06)
ReportRequire_low	0.090*** (4.49)					
ReportRequire_low*EA	-0.006** (-2.08)					
InvestorProtect_low		0.053*** (4.55)				
InvestorProtect_low*EA		0.000 (0.02)				
AnalystFollow_low			0.050*** (25.61)			
AnalystFollow_low*EA			-0.003*** (-11.57)			
InstitutionOwner_low				0.963*** (22.65)		
InstitutionOwner_low*EA				-0.086*** (-15.41)		
EAlag_long					0.004*** (9.29)	
EAlag_long*EA					-0.001***	

EAfreq_low						(-10.95)	0.084*** (8.35)
EAfreq_low*EA							-0.016*** (-5.18)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Year	Year	Year	Year	Year	Year	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Observations	663,216	653,352	667,344	667,344	667,344	667,344	667,344
Adjusted R-squared	0.624	0.627	0.622	0.622	0.620	0.622	0.622

Table 5 Pre-EA versus EA-date Bid-ask Spreads - Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices

Table 5 examines whether foreign listers' home-country regulatory characteristics, financial intermediary features and disclosure choices can explain the difference between foreign listers' EA-date spread spike and that of domestic listers. Panel A presents the regression results using the foreign-lister sample only. Panel B presents the regression results using the full sample containing both foreign and domestic listers. $LnSpread = \text{Log} [(Ask-Bid)/((Ask+Bid)/2)*10000]$, where Ask and Bid are the CRSP daily closing ask and bid prices. The results in Table 5 are in general robust to using nonlogarithmic *Spread* as the dependent variables. *EA* equals one if the trading day is -1, 0, or 1 relative to the EA date, zero otherwise. *Foreign* equals one if the firm is a foreign lister, and zero otherwise. *ReportRequire_low*, *InvestorProtect_low*, *AnalystFollow_low*, *InstitutionOwner_low*, and *EAfreq_low* (*EAlag_long*) in Panel A and Panel B represent foreign listers with weaker home-country regulations, with lower levels of analyst following and institutional ownership, and with less timely and less frequent earnings updates. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Control variables are included but not reported for the estimation. Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 6 Pre-EA versus Post-EA Bid-ask Spreads

Column:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]
Sample:	Foreign Lister	Domestic Lister	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample
Post	-0.020*** (-10.72)	-0.006*** (-3.86)	-0.008*** (-5.05)	-0.008* (-2.05)	-0.008*** (-5.00)	-0.008 (-1.49)	-0.010*** (-5.97)
Foreign			0.373*** (15.35)	0.373*** (12.26)	0.371*** (15.33)	0.371*** (14.02)	0.510*** (19.66)
Foreign*Post			-0.010*** (-4.21)	-0.010** (-2.62)	-0.010*** (-4.16)	-0.010** (-2.58)	-0.010*** (-3.86)
Price	-0.014*** (-15.36)	0.000 (0.50)	0.000 (0.08)	0.000 (0.08)	0.000 (0.15)	0.000 (0.15)	-0.000 (-0.11)
Turnover	0.000** (2.40)	-0.002*** (-13.55)	-0.001*** (-6.84)	-0.001*** (-4.54)	-0.001*** (-7.02)	-0.001*** (-5.92)	-0.000*** (-3.34)
AbsSUE	-0.000*** (-5.83)	0.656*** (16.39)	-0.000** (-2.30)	-0.000*** (-3.18)	-0.000** (-2.12)	-0.000*** (-3.58)	-0.000 (-0.72)
AbsAbret	0.333*** (3.59)	0.543*** (7.65)	0.507*** (8.20)	0.507*** (4.66)	0.356*** (5.84)	0.356*** (5.18)	0.553*** (9.06)
AnalystFollowing	-0.056*** (-15.57)	-0.035*** (-23.00)	-0.049*** (-25.22)	-0.049*** (-22.12)	-0.049*** (-25.16)	-0.049*** (-24.17)	-0.041*** (-21.30)
InstitutionalOwnership	-0.047* (-1.82)	-1.697*** (-51.12)	-0.959*** (-22.64)	-0.959*** (-18.03)	-0.955*** (-22.62)	-0.955*** (-21.02)	-0.810*** (-19.51)
PriorQuarterVolatility	6.221*** (4.14)	46.634*** (13.34)	38.483*** (14.53)	38.483*** (5.85)	47.787*** (15.92)	47.787*** (9.59)	36.312*** (14.08)
PriorQuarterTurnover	0.000 (1.41)	-0.005*** (-13.99)	-0.002*** (-8.62)	-0.002*** (-5.33)	-0.002*** (-9.16)	-0.002*** (-7.95)	-0.002*** (-8.84)
TotalAssets	-0.260*** (-25.98)	-0.251*** (-40.49)	-0.258*** (-34.48)	-0.258*** (-27.60)	-0.258*** (-34.41)	-0.258*** (-31.98)	-0.310*** (-40.27)
EAfreq	-0.069*** (-4.89)	-0.062*** (-7.67)	-0.078*** (-7.92)	-0.078*** (-6.84)	-0.076*** (-7.73)	-0.076*** (-7.21)	-0.083*** (-8.98)
Constant	5.919*** (73.63)	5.884*** (123.33)	5.647*** (92.75)	5.647*** (72.01)	5.632*** (92.44)	5.632*** (84.59)	5.839*** (100.29)

Fixed effects Clustered SE	Year Firm	Year Firm	Year Firm	Year Firm, Year	Quarter Firm	Quarter Firm, Quarter	Year, Industry Firm
Observations	500,508	500,508	1,001,016	1,001,016	1,001,016	1,001,016	1,001,016
Adjusted R-squared	0.589	0.668	0.625	0.625	0.632	0.632	0.642

Table 6 Pre-EA versus Post-EA Bid-ask Spreads

Table 6 examines the change in daily bid-ask spreads in the [+2, +10] window after the EA date compared to the daily bid-ask spreads in the [-10, -2] window before the EA date. Columns (1) and (2) use a sample of 27,806 foreign firm-quarters and a sample of 27,806 matched domestic firm-quarters, respectively. Columns (3) to (7) present the results of regressions with different model specifications using the full sample which contains 27,806 foreign and domestic firm-quarter pairs. Domestic firm-quarters are matched with foreign firm-quarters based on the direction of SUE, calendar quarter and firm size. $LnSpread = \text{Log} [(Ask-Bid)/((Ask+Bid)/2)*10000]$, where Ask and Bid are the CRSP daily closing ask and bid prices. The results in Table 6 are robust to using nonlogarithmic *Spread* as the dependent variables. *Post* equals one if the trading day is in the post-announcement period, zero otherwise. *Foreign* equals one if the firm is a foreign lister, and zero otherwise. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). *EA* is an indicator variable that equals one if the trading day is -1, 0, or 1 relative to the EA date, and equals zero otherwise. All variable definitions are presented in Appendix D. Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 7 Pre-EA versus Post-EA Bid-ask Spreads - Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]
Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
<i>Panel A: Within Foreign-lister Sample Variation</i>						
Post	-0.068*** (-6.26)	-0.042*** (-4.88)	-0.025*** (-10.21)	-0.021*** (-10.21)	0.001 (0.18)	-0.052*** (-5.77)
ReportRequire_low	0.047** (2.46)					
ReportRequire_low* Post	-0.009*** (-4.66)					
InvestorProtect_low		0.041*** (3.50)				
InvestorProtect_low* Post		-0.003*** (-2.68)				
AnalystFollow_low			0.050*** (14.03)			
AnalystFollow_low* Post			-0.001*** (-3.75)			
InstitutionOwner_low				0.165*** (3.62)		
InstitutionOwner_low* Post				-0.004** (-2.03)		
EAlag_long					0.005*** (9.74)	
EAlag_long* Post					-0.000*** (-5.32)	
EAlag_low						0.074*** (5.15)
EAlag_low*EA						-0.009***

Control Variables	Yes	Yes	Yes	Yes	Yes	(-3.66)
Fixed effects	Year	Year	Year, Country	Year, Country	Year, Country	Yes
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm
Observations	494,316	479,520	500,508	500,508	500,508	500,508
Adjusted R-squared	0.590	0.593	0.615	0.615	0.619	0.589

Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
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Panel B: Full Sample Variation

Post	-0.039*** (-3.63)	-0.035*** (-4.22)	-0.019*** (-7.92)	-0.012*** (-4.17)	0.003 (0.88)	-0.044*** (-5.71)
Foreign	0.340*** (12.72)	0.324*** (11.21)	0.370*** (15.26)	0.372*** (15.33)	0.337*** (13.68)	0.372*** (15.32)
Foreign*Post	-0.008*** (-3.30)	-0.007*** (-2.65)	-0.005** (-2.02)	-0.009*** (-3.64)	-0.006** (-2.29)	-0.009*** (-3.46)
ReportRequire_low	0.089*** (4.42)					
ReportRequire_low*Post	-0.005*** (-2.88)					
InvestorProtect_low		0.053*** (4.64)				
InvestorProtect_low*Post		-0.003*** (-3.27)				
AnalystFollow_low			0.049*** (25.51)			
AnalystFollow_low*Post			-0.001*** (-7.04)			
InstitutionOwner_low				0.962*** (22.64)		
InstitutionOwner_low*Post				-0.006* (-1.68)		
EAlag_long					0.004*** (9.13)	
EAlag_long*Post					-0.000***	

EAFreq_low						(-5.19)	0.083*** (8.32)
EAFreq_low*EA							-0.010*** (-4.77)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Year	Year	Year	Year	Year	Year	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Observations	994,824	980,028	1,001,016	1,001,016	1,001,016	1,001,016	1,001,016
Adjusted R-squared	0.627	0.630	0.625	0.625	0.624	0.625	0.625

Table 7 Pre-EA versus Post-EA Bid-ask Spreads - Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices

Table 7 examines whether foreign listers' home-country regulatory characteristics, financial intermediary features and disclosure choices can explain the difference between foreign listers' post-EA daily spread decrease and that of domestic listers. Panel A presents the results of regressions using the foreign-lister sample only. Panel B presents the results of regressions using the full sample which contains both foreign and domestic listers. $LnSpread = \text{Log} [(Ask-Bid)/((Ask+Bid)/2)*10000]$, where Ask and Bid are the CRSP daily closing ask and bid prices. The results in Table 7 are in general robust to using nonlogarithmic *Spread* as the dependent variables. *Post* equals one if the trading day is 2 to 10 relative to the EA date, zero otherwise. *Foreign* equals one if the firm is a foreign lister, and zero otherwise. *ReportRequire_low*, *InvestorProtect_low*, *AnalystFollow_low*, *InstitutionOwner_low*, and *EAFreq_low* (*EAlag_long*) in Panel A and Panel B represent foreign listers with weaker home-country regulations, with lower levels of analyst following and institutional ownership, and with less timely and less frequent earnings updates. Control variables are included but not reported for the estimation. Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 8 Longer-term Bid-ask Spreads – Home-country Regulatory Characteristics, Financial Intermediary Features and Disclosure Choices

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.:	LnAvgSpread	LnAvgSpread	LnAvgSpread	LnAvgSpread	LnAvgSpread	LnAvgSpread
Days relative to the EA date:	[+2, +61]	[+2, +61]	[+2, +61]	[+2, +61]	[+2, +61]	[+2, +61]
Sample:	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample
Feature Var.:	Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
Foreign	0.302*** (11.62)	0.283*** (10.04)	0.340*** (14.31)	0.340*** (14.31)	0.313*** (12.96)	0.340*** (14.31)
ReportRequire_low	0.104*** (5.11)					
InvestorProtect_low		0.059*** (5.11)				
AnalystFollow_low			0.050*** (27.82)			
InstitutionOwner_low				1.018*** (24.99)		
EAlag_long					0.004*** (8.85)	
EAfreq_low						0.077*** (7.86)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Year	Year	Year	Year	Year	Year
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm
Observations	55,268	54,446	55,612	55,612	55,612	55,612
Adjusted R-squared	0.715	0.718	0.721	0.715	0.715	0.716

Table 8 Longer-term Bid-ask Spreads - Home-country Regulatory Characteristics, Financial Intermediary Features, and Disclosure Choices

Table 8 examines the effects of EAs on the long-term spreads using a sample of 27,806 foreign and domestic firm-quarter pairs. Domestic firm-quarters are matched with foreign firm-quarters based on the direction of SUE, calendar quarter and firm size. *LnAvgSpread* [+2, +61] is the log value of the average spread during the [+2, +61] window after the EA date. *Foreign* equals one if the firm is a foreign lister, and zero otherwise. *ReportRequire_low*, *InvestorProtect_low*, *AnalystFollow_low*, and *InstitutionOwner_low* (*EAlag_long*) in Panel A and Panel B represent foreign listers with weaker home-country regulations, with lower levels of analyst following and institutional ownership, and with less timely and less frequent earnings updates. Control variables are included but not reported for the estimation. Robust t-statistics are in parentheses. *** represents p<0.01, ** represents p<0.05, and * represents p<0.1.

Table 9 Summary of Results Using Alternative Matching Methods

Column: Dep. Var.:	(1) Daily LnSpread	(2) Daily LnSpread	(3) Daily LnSpread	(4) Daily LnSpread	(5) Daily LnSpread	(6) Daily LnSpread	(7) Daily LnSpread
Feature Var.:		Reporting Requirement	Investor Protection	Analyst Following	Institutional Ownership	EA Lag	EA Frequency
Panel A: Pre-EA v.s. EA-Date Bid-ask Spreads in the [-10,+1] Window							
<i>PSM based on all control variables (21,955 foreign-domestic firm-quarter pairs)</i>							
EA	0.106***	0.074***	0.084***	0.091***	0.056***	0.137***	0.062***
Foreign	0.362***	0.339***	0.320***	0.361***	0.358***	0.329***	0.362***
Foreign*EA	-0.067***	-0.064***	-0.065***	-0.061***	-0.057***	-0.065***	-0.046***
Feature		0.063***	0.051***	0.036***	0.694***	0.004***	0.082***
Feature*EA		-0.006**	-0.003*	-0.002***	-0.074***	-0.001***	-0.012***
<i>EBM based on all control variables (21,995 foreign firm-quarters and 177,900 domestic firm-quarters)</i>							
EA	0.119***	0.074***	0.154***	0.091***	0.044***	0.162***	0.039***
Foreign	0.183***	0.147***	0.130***	0.181***	0.178***	0.171***	0.182***
Foreign*EA	-0.067***	-0.063***	-0.073***	-0.059***	-0.045***	-0.055***	-0.063***
Feature		0.102***	0.060***	0.049***	1.690***	0.001***	0.079***
Feature*EA		-0.008***	0.004***	-0.004***	-0.121***	-0.001***	-0.022***
Panel B: pre-EA v.s. Post-EA Bid-ask Spreads in the [-10,-2] & [2,10] Windows							
<i>PSM based on all control variables (21,955 foreign-domestic firm-quarter pairs)</i>							
Post	-0.012***	-0.049***	-0.049***	-0.023***	-0.016***	0.001	-0.049***
Foreign	0.356***	0.333***	0.312***	0.354***	0.355***	0.323***	0.355***
Foreign*Post	-0.008***	-0.005*	-0.003	-0.003	-0.007***	-0.004	-0.006**
Feature		0.062***	0.052***	0.035***	0.693***	0.004***	0.028***
Feature*Post		-0.007***	-0.005***	-0.001***	-0.007**	-0.000***	-0.010***
<i>EBM based on all control variables (21,995 foreign firm-quarters and 177,900 domestic firm-quarters)</i>							
Post	-0.014***	0.012	-0.057***	-0.025***	-0.020***	-0.005***	-0.051***
Foreign	0.181***	0.147***	0.124***	0.179***	0.180***	0.170***	0.180***
Foreign*Post	-0.003	-0.005**	0.003	0.000	-0.002	-0.000	-0.001
Feature		0.095***	0.064***	0.048***	1.687***	0.001***	0.078***
Feature*Post		0.005***	-0.005***	-0.001***	-0.009***	-0.000***	-0.010***

Table 9 Summary of Results Using Alternative Matching Methods

Table 9 summarizes the results in Tables 4 to 7 using alternative matching methods including PSM and EBM. $LnSpread = \text{Log} ((\text{Ask}-\text{Bid})/[(\text{Ask}+\text{Bid})/2])$, where Ask and Bid are the CRSP daily closing ask and bid prices. This model uses day -2 relative to the EA date as the baseline day. *Foreign* equals one if the firm is a foreign lister, and zero otherwise. *Feature* represents *ReportRequire_low*, *InvestorProtect_low*, *AnalystFollow_low*, and *InstitutionOwner_low* (*EAlag_long*) in turn in each associated column. Control variables are included but not reported for the estimation. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 10 EA-date Abnormal Trading Volume (Abnormal Return Volatility) and Textual Measures

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Foreign listers	Foreign listers	Foreign listers	Foreign listers	Foreign listers	Foreign listers
Dep. Var.:	Abvolume	Abvolume	Abvolume	Abvolat	Abvolat	Abvolat
Days relative to the EA date:	[-1, +1]	[-1, +1]	[-1, +1]	[-1, +1]	[-1, +1]	[-1, +1]
Wordcount	0.110*			0.175		
	(1.90)			(1.61)		
Wordcount^2	-0.008**			-0.013*		
	(-2.14)			(-1.95)		
Nlcount		0.048**			0.083**	
		(2.54)			(2.44)	
Nlcount^2		-0.004**			-0.009***	
		(-2.33)			(-2.76)	
FLScount			0.062***			0.054*
			(3.56)			(1.75)
FLScount^2			-0.016***			-0.017***
			(-4.36)			(-2.69)
AbsSUE	-0.000	-0.000	-0.000	0.000	0.000	0.000
	(-0.76)	(-0.72)	(-0.70)	(1.33)	(1.59)	(1.35)
AbsAbret	6.324***	6.330***	6.321***	23.803***	23.799***	23.798***
	(52.15)	(52.23)	(52.10)	(77.11)	(77.12)	(77.11)
AnalystFollowing	0.031***	0.031***	0.030***	0.014***	0.014***	0.015***
	(12.51)	(12.61)	(12.69)	(4.06)	(4.05)	(4.19)
InstitutionalOwnership	0.005	0.004	0.003	0.020***	0.021***	0.017**
	(0.66)	(0.63)	(0.48)	(2.64)	(2.72)	(2.40)
PriorQuarterVolatility	-87.307***	-87.559***	-87.325***	-341.745***	-341.752***	-340.894***
	(-20.45)	(-20.58)	(-20.45)	(-32.92)	(-33.00)	(-32.81)
PriorQuarterTurnover	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(-8.66)	(-8.37)	(-8.15)	(-10.97)	(-11.03)	(-10.78)
TotalAssets	0.015***	0.013***	0.014***	0.061***	0.061***	0.059***
	(5.13)	(4.43)	(4.98)	(11.97)	(11.48)	(11.94)
MTB	0.000	0.000	0.000	0.001***	0.001***	0.001***
	(1.30)	(1.31)	(1.29)	(10.73)	(10.72)	(10.96)
EAFreq	0.022***	0.023***	0.023***	0.031***	0.032***	0.032***
	(3.98)	(4.08)	(4.08)	(2.86)	(2.91)	(2.96)

Fixed effects	Year	Year	Year	Year	Year	Year
Clustered SE	Firm	Firm, Year	Firm	Firm	Firm	Firm
Observations	16,575	16,575	16,575	16,575	16,575	16,575
Adjusted R-squared	0.271	0.271	0.272	0.446	0.446	0.446

Table 10 EA-date Abnormal Trading Volume (Abnormal Return Volatility) and Textual Measures

Table 10 examines how levels of disclosure in foreign listers' EAs are associated with 3-day abnormal trading volume (*Abvolume*) and 3-day abnormal trading volatility (*Abvolat*) at announcement. Following Lerman and Livnat (2010), *Abvolume* is calculated as the average trading volume in the [-1,+1] window divided by the average trading volume in the [-63,-8] window minus 1. *Abvolat* is calculated as the average squared abnormal returns in the [-1,+1] window divided by the variance of abnormal returns in the [-63,-8] window. *Nlcount* = the log value of the count of numbers in EAs, excluding dates, indexes and page numbers. *FLScount* = the log value of the number of sentences containing forward-looking words in EAs. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 11 EA-date Bid-ask Spreads and Levels of Disclosure

Column:	(1)	(2)	(3)
Sample:	Foreign listers	Foreign listers	Foreign listers
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, +1]	[-10, +1]	[-10, +1]
<i>Panel A Without Country-fixed Effect</i>			
EA	-0.031 (-1.19)	0.004 (0.27)	0.024*** (3.45)
Wordcount	-0.037* (-1.93)		
Wordcount*EA	0.007*** (2.68)		
NIcount		-0.015 (-1.12)	
NIcount*EA		0.006*** (2.70)	
FLScount			-0.071*** (-4.34)
FLScount*EA			0.007*** (2.68)
Price	-0.015*** (-13.18)	-0.015*** (-13.14)	-0.015*** (-13.50)
Turnover	0.000 (0.11)	0.000 (0.08)	0.000 (0.15)
AbsSUE	-0.000*** (-6.34)	-0.000*** (-5.96)	-0.000*** (-5.90)
AbsAbret	-0.137 (-0.99)	-0.130 (-0.94)	-0.135 (-0.99)
AnalystFollowing	-0.069*** (-11.00)	-0.069*** (-10.99)	-0.068*** (-10.83)
InstitutionalOwnership	-0.064* (-1.65)	-0.064* (-1.66)	-0.066* (-1.67)
PriorQuarterVolatility	73.351*** (11.56)	73.216*** (11.56)	75.423*** (11.82)
PriorQuarterTurnover	0.000*** (4.80)	0.000*** (4.96)	0.000*** (4.48)
TotalAssets	-0.268*** (-24.24)	-0.271*** (-24.53)	-0.266*** (-24.95)
EAfreq	-0.016 (-1.22)	-0.015 (-1.14)	-0.017 (-1.32)
Fixed effects	Year	Year	Year
Clustered SE	Firm	Firm	Firm
Observations	198,884	198,884	198,884
Adjusted R-squared	0.576	0.576	0.579
<i>Panel B With Country-fixed Effect</i>			
EA	-0.031	0.004	0.024***

Wordcount	(-1.18) -0.027 (-1.64)	(0.31)	(3.44)
Wordcount*EA	0.008*** (2.72)		
NIcount		-0.012 (-1.08)	
NIcount*EA		0.006*** (2.69)	
FLScount			-0.049*** (-3.32)
FLScount*EA			0.008*** (2.72)
Fixed effects	Year, Country	Year, Country	Year, Country
Clustered SE	Firm	Firm	Firm
Observations	198,884	198,884	198,884
Adjusted R-squared	0.611	0.610	0.612

Panel C Potential Non-linearity Effect

EA	-0.003 (-0.02)	-0.004 (-0.15)	0.020** (2.07)
Wordcount	0.008 (0.06)		
Wordcount*EA	0.002 (0.05)		
Wordcount^2	-0.002 (-0.26)		
Wordcount^2*EA	0.000 (0.20)		
NIcount		0.044 (1.02)	
NIcount*EA		0.009 (0.89)	
NIcount^2		-0.005 (-1.20)	
NIcount^2*EA		-0.000 (-0.32)	
FLScount			-0.091** (-1.97)
FLScount*EA			0.012 (1.33)
FLScount^2			0.009 (1.01)
FLScount^2*EA			-0.001 (-0.50)
Fixed effects	Year, Country	Year, Country	Year, Country
Clustered SE	Firm	Firm	Firm
Observations	198,884	198,884	198,884

Adjusted R-squared	0.611	0.611	0.612
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Table 11 EA-date Bid-ask Spreads and Levels of Disclosure

Table 11 examines how levels of disclosure in foreign listers' EAs affect their bid-ask spread spikes at announcement. $LnSpread = \text{Log}((\text{Ask}-\text{Bid})/[(\text{Ask}+\text{Bid})/2])$, where Ask and Bid are the CRSP daily closing ask and bid prices. EA equals one if the trading day is -1,0, or 1 relative to the EA date, zero otherwise. $Wordcount$ = the log value of the word count of EAs. $NIcount$ = the log value of the count of numbers in EAs, excluding dates, indexes and page numbers. $FLScout$ = the log value of the number of sentences containing forward-looking words in EAs. Control variables are included but not reported for the estimation. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 12 Pre-EA versus Post-EA Bid-ask Spreads and Levels of Disclosure

Column:	(1)	(2)	(3)
Sample:	Foreign listers	Foreign listers	Foreign listers
Dep. Var.:	Daily Lnsread	Daily Lnsread	Daily Lnsread
Days relative to the EA date:	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]
<i>Panel A Without Country-fixed Effect</i>			
Post	-0.065*** (-3.30)	-0.030*** (-2.84)	-0.037*** (-6.83)
Wordcount	-0.037* (-1.94)		
Wordcount* Post	0.005** (2.14)		
NIcount		-0.015 (-1.13)	
NIcount* Post		0.001 (0.66)	
FLScount			-0.071*** (-4.39)
FLScount* Post			0.006*** (2.92)
Control Variables	Yes	Yes	Yes
Fixed effects	Year	Year	Year
Clustered SE	Firm	Firm	Firm
Observations	298,217	298,217	298,217
Adjusted R-squared	0.580	0.580	0.582
<i>Panel B With Country-fixed Effect</i>			
Post	-0.064*** (-3.24)	-0.029*** (-2.76)	-0.036*** (-6.64)
Wordcount	-0.028* (-1.68)		
Wordcount* Post	0.005** (2.11)		
NIcount		-0.013 (-1.11)	
NIcount* Post		0.001 (0.62)	
FLScount			-0.050*** (-3.40)
FLScount* Post			0.006*** (2.86)
Control Variables	Yes	Yes	Yes
Fixed effects	Year, Country	Year, Country	Year, Country
Clustered SE	Firm	Firm	Firm
Observations	298,217	298,217	298,217

Adjusted R-squared	0.615	0.615	0.616
Panel C Potential Non-linearity Effect			
Post	0.153* (1.79)	0.031 (1.27)	-0.036*** (-4.66)
Wordcount	-0.026 (-0.15)		
Wordcount *Post	-0.049** (-2.36)		
Wordcount^2	-0.001 (-0.07)		
Wordcount^2 *Post	0.003*** (2.63)		
NIcount		0.043 (0.88)	
NIcount *Post		-0.023*** (-2.63)	
NIcount^2		-0.005 (-1.07)	
NIcount^2 *Post		0.002*** (2.87)	
FLScount			-0.133** (-2.44)
FLScount*Post			0.005 (0.69)
FLScount^2			0.014 (1.25)
FLScount^2*Post			0.000 (0.24)
Control Variables	Yes	Yes	Yes
Fixed effects	Year, Country	Year, Country	Year, Country
Clustered SE	Firm	Firm	Firm
Observations	298,217	298,217	298,217
Adjusted R-squared	0.580	0.580	0.583

Table 12 Pre-EA versus Post-EA Bid-ask Spreads and Levels of Disclosure

Table 12 examines how levels of disclosure in foreign listers' EAs affect their post-EA spread decreases using daily observations in the [-10,-2] and [+2,+10] EA windows. $LnSpread = \log((Ask-Bid)/(Ask+Bid)/2)$, where Ask and Bid are the CRSP daily closing ask and bid prices. *Post* equals one if the trading day is 2 to 10 relative to the EA date, zero otherwise. *Foreign* equals one if the firm is a foreign lister, and zero otherwise. *Wordcount* = the log value of the word count of EAs. *NIcount* = the log value of the count of numbers in EAs, excluding dates, indexes and page numbers. *FLScount* = the log value of the number of sentences containing forward-looking words in EAs. Control variables are included but not reported for the estimation. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 13 EA-date Bid-ask Spreads and Levels of Disclosure (Median-split Textual Measures)

Column:	(1)	(2)	(3)
Sample:	Foreign listers	Foreign listers	Foreign listers
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10, +1]	[-10, +1]	[-10, +1]
Panel A: Median split (high versus low)			
EA	0.034*** (7.38)	0.033*** (7.34)	0.035*** (7.87)
Wordcount_high	-0.078** (-2.46)		
Wordcount_high *EA	0.013** (2.10)		
NIcount_high		-0.056* (-1.75)	
NIcount_high *EA		0.014** (2.18)	
FLScount_high			-0.112*** (-4.03)
FLScount_high *EA			0.012** (2.02)
Control Variables	Yes	Yes	Yes
Fixed effects	Year, Country	Year, Country	Year, Country
Clustered SE	Firm	Firm	Firm
Observations	198,884	198,884	198,884
Adjusted R-squared	0.599	0.598	0.600
Panel B: Split into three groups (high, medium, and low) and drop the medium group			
EA	0.032*** (5.81)	0.031*** (5.80)	0.031*** (6.11)
Wordcount_high	-0.092** (-2.29)		
Wordcount_high *EA	0.018** (2.34)		
NIcount_high		-0.058 (-1.35)	
NIcount_high *EA		0.018** (2.35)	
FLScount_high			-0.124*** (-3.27)
FLScount_high *EA			0.022*** (2.96)
Control Variables	Yes	Yes	Yes
Fixed effects	Year, Country	Year, Country	Year, Country
Clustered SE	Firm	Firm	Firm
Observations	132,275	132,246	140,457
Adjusted R-squared	0.621	0.614	0.617

Table 13 EA-date Bid-ask Spreads and Levels of Disclosure (Median-split Textual Measures)

Table 13 examines how levels of disclosure in foreign listers' EAs affect their bid-ask spread spikes at announcement using alternative median-split textual measures. $LnSpread = \text{Log}((\text{Ask}-\text{Bid})/[(\text{Ask}+\text{Bid})/2])$, where Ask and Bid are the CRSP daily closing ask and bid prices. EA equals one if the trading day is -1,0, or 1 relative to the EA date, zero otherwise. $Wordcount_high = 1$ if the log value of the word count of EAs is above the median or is categorized as the high group. $Nlcount_high = 1$ if the log value of the count of numbers in EAs, excluding dates, indexes and page numbers is greater than the median or is categorized as the high group. $FLScout_high = 1$ if the log value of the number of sentences containing forward-looking words in EAs is greater than the median or is categorized as the high group. Control variables are included but not reported for the estimation. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 14 Pre-EA versus Post-EA Bid-ask Spreads and Levels of Disclosure (Median-split Textual Measures)

Column:	(1)	(2)	(3)
Sample:	Foreign listers	Foreign listers	Foreign listers
Dep. Var.:	Daily Lnsread	Daily Lnsread	Daily Lnsread
Days relative to the EA date:	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]	[-10, -2] v.s. [+2, +10]
Panel A: Median split (high versus low)			
Post	-0.030*** (-8.25)	-0.025*** (-7.58)	-0.030*** (-8.70)
Wordcount_high	-0.064* (-1.76)		
Wordcount_high *Post	0.013*** (2.80)		
Nlcount_high		-0.058* (-1.79)	
Nlcount_high *Post		0.004 (0.87)	
FLScount_high			-0.114*** (-4.11)
FLScount_high*Post			0.013*** (2.94)
Control Variables	Yes	Yes	Yes
Fixed effects	Year, Country	Year, Country	Year, Country
Clustered SE	Firm	Firm	Firm
Observations	298,217	298,217	298,217
Adjusted R-squared	0.544	0.602	0.604
Panel B: Split into three groups (high, medium, and low) and drop the medium group			
Post	-0.024*** (-5.78)	-0.024*** (-6.11)	-0.032*** (-7.95)
Wordcount_high	-0.089* (-1.94)		
Wordcount_high *Post	0.011** (1.96)		
Nlcount_high		-0.059 (-1.39)	
Nlcount_high *Post		0.006 (1.15)	
FLScount_high			-0.128*** (-3.36)
FLScount_high *Post			0.018*** (3.29)
Control Variables	Yes	Yes	Yes
Fixed effects	Year, Country	Year, Country	Year, Country
Clustered SE	Firm	Firm	Firm
Observations	198,306	198,271	210,572
Adjusted R-squared	0.574	0.617	0.620

Table 14 Pre-EA versus Post-EA Bid-ask Spreads and Levels of Disclosure (Median-split Textual Measures)

Table 14 examines how levels of disclosure in foreign listers' EAs affect their post-EA spread decreases using alternative median-split textual measures. $LnSpread = \text{Log} ((\text{Ask}-\text{Bid})/[(\text{Ask}+\text{Bid})/2])$, where Ask and Bid are the CRSP daily closing ask and bid prices. *Post* equals one if the trading day is 2 to 10 relative to the EA date, zero otherwise. *Wordcount_high* = 1 if the log value of the word count of EAs is above the median or is categorized as the high group. *Nlcount_high* = 1 if the log value of the count of numbers in EAs, excluding dates, indexes and page numbers is greater than the median or is categorized as the high group. *FLScout_high* = 1 if the log value of the number of sentences containing forward-looking words in EAs is greater than the median or is categorized as the high group. Control variables are included but not reported for the estimation. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 15 Pre-EA versus Post-EA Bid-ask Spreads and Levels of Disclosure (the [11,20] days after the EA date)

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Foreign listers	Foreign listers	Foreign listers	Foreign listers	Foreign listers	Foreign listers
Textual Measures:	Wordcount	Wordcount	NIcount	NIcount	FLScount	FLScount
Dep. Var.:	Daily Lnspread	Daily Lnspread	Daily Lnspread	Daily Lnspread	Daily Lnspread	Daily Lnspread
Days relative to the EA date:	[-15,-11] v.s. [+11,+15]	[-20,-16] v.s. [+16,+20]	[-15,-11] v.s. [+11,+15]	[-20,-16] v.s. [+16,+20]	[-15,-11] v.s. [+11,+15]	[-20,-16] v.s. [+16,+20]
Post	-0.008 (-0.31)	0.051** (2.03)	-0.004 (-0.24)	0.041*** (2.95)	-0.015** (-2.55)	-0.011* (-1.73)
Wordcount	-0.024 (-1.49)	-0.022 (-1.33)				
Wordcount *Post	-0.000 (-0.15)	-0.008** (-2.53)				
NIcount			-0.011 (-1.01)	-0.010 (-0.85)		
NIcount *Post			-0.001 (-0.54)	-0.009*** (-3.88)		
FLScount					-0.041*** (-3.13)	-0.040*** (-3.07)
FLScount*Post					0.001 (0.58)	-0.000 (-0.15)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Year, Country	Year, Country	Year, Country	Year, Country	Year, Country	Year, Country
Clustered SE	Firm	Firm	Firm	Firm	Firm	Firm
Observations	163,439	163,348	163,439	163,348	163,439	163,348
Adjusted R-squared	0.615	0.615	0.615	0.615	0.616	0.616

Table 15 Pre-EA versus Post-EA Bid-ask Spreads and Levels of Disclosure (the [11,20] window after the EA date)

Table 15 examines how levels of disclosure in foreign listers' EAs affect their post-EA spread decreases using daily observations in the extended EA windows. $LnSpread = \text{Log}((\text{Ask}-\text{Bid})/[(\text{Ask}+\text{Bid})/2])$, where Ask and Bid are the CRSP daily closing ask and bid prices. *Post* equals one if the trading day is 11 to 20 relative to the EA date, zero otherwise. *Wordcount* = the log value of the word count of EAs. *NIcount* = the log value of the count of numbers in EAs, excluding dates, indexes and page numbers. *FLScount* = the log value of the number of sentences containing forward-looking words in EAs. Control variables are included but not reported for the estimation. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 16 Pre-EA versus Post-EA Bid-ask Spreads and Levels of Disclosure (Quintile Textual Measures and Sub-window Comparison)

Column:	(1)	(2)	(3)	(4)
Sample:	Foreign	Foreign	Foreign	Foreign
	Listers	Listers	Listers	Listers
Dep. Var.:	Lnsread	Lnsread	Lnsread	Lnsread
Days relative to the EA date:	[-5,-2] v.s. [+2,+5]	[-10,-7] v.s. [+7,+10]	[-11,-15] v.s. [11,+15]	[-20,-16] v.s. [+16,+20]
<i>1</i> Quintile * Post is treated as the baseline				
Wordcount_2Quintile *Post	0.009	-0.030***	-0.027**	-0.016
Wordcount_3Quintile *Post	-0.002	-0.015*	-0.029***	-0.032***
Wordcount_4Quintile *Post	0.026***	-0.017*	-0.016*	-0.026***
Wordcount_5Quintile *Post	0.031***	-0.005	-0.01`	-0.019**
NIcount_2Quintile *Post	0.007	-0.009	-0.001	-0.014
NIcount_3Quintile *Post	-0.004	-0.020**	-0.023**	-0.022**
NIcount_4Quintile *Post	0.012	-0.020**	-0.000	-0.021**
NIcount_5Quintile *Post	0.026***	0.004	-0.009	-0.035***
FLScount_2Quintile *Post	0.007	-0.001	0.003	-0.010
FLScount_3Quintile *Post	0.005	-0.002	0.010	0.005
FLScount_4Quintile *Post	0.013	0.010	-0.004	-0.014
FLScount_5Quintile *Post	0.027***	0.009	0.010	0.002

Table 16 Pre-EA versus Post-EA Bid-ask Spreads and Levels of Disclosure (Quintile Textual Measures and Sub-window Comparison)

Table 16 examines how levels of disclosure in foreign listers' EAs affect their post-EA spread decreases using daily observations in the [-20,-2] and [+2,+20] windows surrounding the EAs of 16,575 foreign firm-quarters. I use quintile textual measures and treat the lowest quintile group as the baseline group. *Wordcount*, *NIcount* and *FLScount* are transferred to quintile measures and the first quintile group is treated as the baseline group in the regressions. Control variables are included but not reported for the estimation. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 17 Pre-EA versus Post-EA Bid-ask Spreads and Levels of Disclosure – Home-country Regulatory Characteristics

Column:	(1)	(2)	(3)	(4)
Dep. Var.:	Daily LnSpread	Daily LnSpread	Daily LnSpread	Daily LnSpread
Days relative to the EA date:	[-10,-2] v.s. [+2,+10]	[-20,-11] v.s. [+11,+20]	[-10,-2] v.s. [+2,+10]	[-20,-11] v.s. [+11,+20]
Subsamples:	Foreign listers from weaker regulatory regimes		Foreign listers from more stringent regulatory regimes	
Panel A: Reporting Requirements				
		<i>Low</i>		<i>High</i>
Wordcount	-0.003	-0.000	-0.051**	-0.045**
Wordcount*Post	0.007*	0.006	-0.002	-0.006
NIcount	-0.009	-0.009	-0.025*	-0.022
NIcount*Post	0.004	0.002	-0.005**	-0.007**
FLScount	-0.000	0.005	-0.047***	-0.045**
FLScount*Post	0.006	0.005	0.001	0.002
Panel B: Investor Protection				
		<i>Low</i>		<i>High</i>
Wordcount	-0.002	-0.001	-0.062***	-0.050***
Wordcount*Post	0.008*	0.003	0.004	-0.010**
NIcount	-0.013	-0.012	-0.033**	-0.028**
NIcount*Post	0.007**	-0.001	-0.002	-0.010***
FLScount	0.000	0.004	-0.068***	-0.060***
FLScount*Post	0.004	0.005	0.006*	-0.000

Table 17 Pre-EA versus Post-EA Bid-ask Spreads and Levels of Disclosure - Home-country Regulatory Characteristics

Table 17 examines how levels of disclosure in foreign listers' EAs affect the decrease in their post-EA spreads separately using two subsamples – foreign listers from weaker regulatory regimes and foreign listers from more stringent regulatory regimes. I split the foreign listers sample into three groups and drop the medium group based on the measure of reporting requirement in Panel A and the measure of investor protection in Panel B. Foreign listers are allocated to weaker regulatory regime subsample if they are categorized as the low group. $LnSpread = \text{Log}((\text{Ask}-\text{Bid})/[(\text{Ask}+\text{Bid})/2])$, where Ask and Bid are the CRSP daily closing ask and bid prices. *Post* equals one if the trading day is 2 to 20 relative to the EA date, zero otherwise. *Wordcount* = the log value of the word count of EAs. *NIcount* = the log value of the count of numbers in EAs, excluding dates, indexes and page numbers. *FLScount* = the log value of the number of sentences containing forward-looking words in EAs. Control variables are included but not reported for the estimation. I only report two key variables (*DiscLevel* and *DiscLevel *Post*) in this table, and all other variables are included but not reported for the estimation. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Robust t-statistics are in parentheses. *** represents $p < 0.01$, ** represents $p < 0.05$, and * represents $p < 0.1$.

Table 18 Longer-term Bid-ask Spreads and Levels of Disclosure – Home-country Regulatory Characteristics

Column:	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var:	LnAvgSpread	LnAvgSpread	LnAvgSpread	LnAvgSpread	LnAvgSpread	LnAvgSpread
Days relative to the EA date:	(2,61)	(2,31)	Annual	(2,61)	(2,31)	Annual
Subsamples:	Foreign listers from weaker regulatory regimes			Foreign listers from more stringent regulatory regimes		
<i>Panel A: Reporting Requirements</i>						
		<i>Low</i>			<i>High</i>	
Wordcount	-0.005	-0.003	-0.006	-0.045**	-0.049**	-0.049**
	(-0.17)	(-0.10)	(-0.19)	(-2.08)	(-2.29)	(-2.33)
NIcount	-0.022	-0.021	-0.016	-0.032***	-0.035**	-0.033**
	(-1.22)	(-1.12)	(-0.89)	(-3.47)	(-2.09)	(-2.05)
FLScount	0.007	0.006	0.003	-0.041**	-0.042**	-0.045***
	(0.27)	(0.23)	(0.12)	(-2.09)	(-2.15)	(-2.28)
<i>Panel B: Investor Protection</i>						
		<i>Low</i>			<i>High</i>	
Wordcount	0.009	0.011	0.005	-0.068***	-0.066***	-0.073***
	(0.34)	(0.41)	(0.19)	(-3.11)	(-3.07)	(-3.40)
NIcount	-0.008	-0.007	-0.010	-0.043***	-0.044***	-0.048***
	(-0.47)	(-0.36)	(-0.57)	(-2.80)	(-2.75)	(-3.13)
FLScount	0.008	0.006	0.004	-0.079***	-0.076***	-0.084***
	(0.38)	(0.26)	(0.17)	(-4.04)	(-3.90)	(-4.30)

Table 18 Longer-term Bid-ask Spreads and Levels of Disclosure - Home-country Regulatory Characteristics

Table 18 examines how levels of disclosure in foreign listers' EAs affect their long-term levels of spreads separately using two subsamples – foreign listers from weaker regulatory regimes and foreign listers from more stringent regulatory regimes. I split the foreign listers sample into three groups and drop the medium group based on the measure of reporting requirement in Panel A and the measure of investor protection in Panel B. Foreign listers are allocated to weaker regulatory regime subsample if they are categorized as the low group. *LnAvgSpread (2,61)* and *LnAvgSpread (2,31)* are the log values of the average of daily spreads during the [+2,+61] window and the [+2,+31] window after the EA date, respectively. *LnAvgSpreadAnnual* is the log value of the average of daily spreads in the calendar year of the EA date. *Wordcount* = the log value of the word count of EAs. *NIcount* = the log value of the count of numbers in EAs, excluding dates, indexes and page numbers. *FLScount* = the log value of the number of sentences containing forward-looking words in EAs. Control variables are included but not reported for the estimation. Robust regression is used to deal with potential influential observations following the suggestion by Leone et al. (2019). Robust t-statistics are in parentheses. *** represents p<0.01, ** represents p<0.05, and * represents p<0.1.