FUCAPE FUNDAÇÃO DE PESQUISA E ENSINO

NADIA CARDOSO MOREIRA

DISCLOSURE REGULATION: the case of foreign firms

VITÓRIA
2019

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Tese apresentada ao Programa de Doutorado em Ciências Contábeis e Administração da Fucape Fundação de Pesquisa e Ensino, como requisito parcial para obtenção do título de Doutora em Ciências Contábeis e Administração.

Orientador: Prof. Dr. Felipe Ramos Ferreira

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Aprovada em 07 de agosto de 2019.

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Aos meus pais, Antonio Alves Moreira e Ana Maria Cardoso; e ao meu amor, Daniel Morton.

AGRADECIMENTOS

Agradeço em primeiro lugar, ao meu orientador, Felipe Ramos, que sempre à disposição, me deu todo suporte e apoio além do imaginável. Sem você essa jornada não teria se completado, grande parte do meu crescimento durante esses anos, como profissional e pesquisadora, se devem a sua incrível influência.

Ao meu co-orientador, Rafael Rogo, que ao aceitar a me orientar na University of British Columbia, onde a minha tese nasceu, me proporcionou acesso a um mundo cheio de possibilidades e conhecimento. Nunca conseguirei agradecer o suficiente a você.

Aos meus colegas de curso, Silvania Neris Nossa e Edvan Soares de Oliveira, que me acompanharam durante todos esses anos, sem a ajuda de vocês nos estudos e na vida eu não teria conseguido chegar até aqui. Eu saindo da matemática, com muito conhecimento lógico e sem nenhum conhecimento de contabilidade quando entrei, e vocês sempre me ajudando a entender a intuição por trás dos problemas contábeis e econômicos. A amizade de vocês foi um presente incrível que eu ganhei durante o programa de doutorado.

Agradeço aos demais colegas do programa, Andréia Schumacher Hartwig, Jose Antonio Tejeda e Lara Christ Sepulcri, que nos dias mais difíceis estavam sempre presentes para ouvirem as lamentações e me dar suporte, e que nos dias mais incríveis estavam ao meu lado para celebrar. Vocês são maravilhosos, agora estarei aqui para apoiá-los em suas jornadas.

À minha mãe, Ana Maria Cardoso, meu modelo, minha rocha, minha maior incentivadora.

Ao meu pai, Antonio Alves Moreira, que mesmo com pouco sempre fez questão de investir na minha educação. Infelizmente, durante grande parte das minhas

conquistas você esteve doente, não podendo estar presente, mas sempre torcendo de casa ou do hospital.

Agradeço também a minha irmã, Dayane Cardoso, pelo suporte emocional e carinho que você me deu, sempre ao meu lado não me deixando falhar. Seu amor foi essencial nessa jornada, minha irmã.

Agradeço ao meu amor e marido, Daniel Morton, por sempre estar presente, pela paciência nos dias turbulentos, pelo carinho, pelo cuidado. Você, que eu provavelmente não teria conhecido se não fosse por esse doutorado, se tornou o meu parceiro mais importante, minha fonte de força, motivação. O orgulho que você esboça por mim me faz querer ir sempre além.

Agradeço à CAPES e à FAPES pelo apoio financeiro para a dedicação ao programa de doutorado com dedicação exclusiva aos estudos.

Agradeço à FUCAPE e aos professores do curso de doutorado, pela dedicação, paciência e ensinamentos.

“True knowledge exists in knowing that you know nothing.”

Socrates

RESUMO

A literatura sugere que uma empresa estrangeira com ações listadas no mercado americano experiencia uma melhoria na governança corporativa da empresa ao se condicionar a outro mercado por meio do aumento das divulgações voluntárias e da conformidade a uma regulação mais restrita estipulada pela *U.S. Securities and Exchange Commission* (SEC) e leis impostas pelo governo dos EUA. No entanto, a SEC não impõe a regulamentação às empresas estrangeiras da mesma forma. Empresas estrangeiras com ações listadas no mercado norte-americano são classificadas em dois grupos: *Foreign Domestic Issuers* (FDIs) e *Foreign Private Issuers* (FPIs), onde as FDIs devem cumprir a regulamentação de divulgação integral, enquanto as FPIs gozam de algumas isenções regulamentares, proporcionando menos divulgações obrigatórias com informações menos detalhadas. Este estudo tem como objetivo investigar as consequências da diferente regulamentação de *disclosure* estipulada pela SEC para empresas estrangeiras sobre a qualidade dos resultados, monitoramento intermediário (analistas) e assimetria informacional entre os investidores. Usando *accruals* anormais, suavização dos lucros, e gestão dos lucros para atingir metas, os resultados mostram que as empresas estrangeiras que cumprem com a regulamentação completa tendem a ter resultados mais informativos do que empresas norte-americanas, enquanto empresas estrangeiras com as isenções de divulgações tendem a ter resultados menos informativos do que as empresas norte-americanas. Concluindo que a menor qualidade dos resultados das empresas estrangeiras encontrada na literatura anterior poderia ser amenizada se a SEC regulasse todas as empresas da mesma forma. Para o segundo objetivo, usando uma amostra de empresas estrangeiras listadas no mercado americano entre 2000 e 2015, os resultados indicam que as empresas estrangeiras que cumprem com divulgação completa têm previsões menos dispersas e monitoramento mais intenso de analistas do que as empresas norte-americanas, e nenhuma evidência de diferença precisão nas previsões dos resultados entre os dois grupos. Por outro lado, as empresas estrangeiras com isenção de divulgações têm previsões menos precisas e mais dispersas do que as empresas norte-americanas e mostram evidências de menos monitoramento de analistas. Além disso, usando *bid-ask spread*, volume inexplicado padronizado (VIP) e iliquidez como proxies para a assimetria de informação entre os investidores, os resultados sugerem que empresas estrangeiras

divulgando informações menos frequentes e menos detalhadas estão relacionadas a um nível mais alto de assimetria de informacional do que empresas norte-americanas semelhantes; enquanto as empresas estrangeiras que divulgam como empresas norte-americanas apresentaram níveis de assimetria semelhantes, ou ainda mais baixos, entre os investidores do que empresas similares norte-americanas. Portanto, as isenções da SEC estão levando a um pior ambiente de informacional. Os resultados encontrados na literatura anterior, sugerindo que empresas estrangeiras têm um ambiente de informacional pior do que as empresas norte-americanas, poderiam ser amenizados, ou até mesmo revertidos, se a SEC regulasse todas as empresas da mesma forma.

Palavras-Chave: empresas estrangeiras; qualidade dos resultados; previsões dos analistas; assimetria de informação; regulamento das divulgações.[1]

[1] Parte dos resultados dessa pesquisa foram publicados em Moreira, N. C., & Ramos, F. (2019). DOES REPORTING REGULATION AFFECT ANALYST FORECAST PROPERTIES? THE CASE OF FOREIGN FIRMS. Moreira, N.C., & Ramos, F. (2019). DOES REPORTING REGULATION AFFECT EARNINGS QUALITY? THE CASE OF FOREIGN FIRMS. In Anais do XIII Congresso ANPCONT.

ABSTRACT

Prior literature suggests that a foreign firm cross-listing its shares in the U.S. market experience an improvement in the company's corporate governance by "bonding" itself to another market via increased voluntarily disclosures and compliance to the more restrict regulation stipulated by the U.S. Securities and Exchange Commission (SEC) and laws enforced by the U.S. government. However, the SEC does not enforce all foreign firms at the same strength. Foreign firms with their securities listed in the U.S. market are classified in two groups: Foreign Domestic Issuers (FDIs) and Foreign Private Issuers (FPIs), where FDIs must comply with full disclosure regulation while FPIs enjoy some regulation exemptions, providing fewer mandatory disclosures with less detailed information. This study aims to investigate the consequences of the different disclosure regulation stipulated by the SEC for foreign firms on earnings quality, intermediary monitors (analysts) and information asymmetry among investors. Using abnormal accruals, earnings smoothness and managing towards earnings targets as earnings quality measures, I found that foreign firms complying with the full regulation tend to have more informative earnings than U.S. firms, while foreign firms with disclosure regulation exemptions tend to have less informative earnings than U.S. firms. Concluding that the lower quality of foreign firms' earnings found in prior literature could be diminish if the SEC regulated all firms at the same extent. In the second goal, using a sample of foreign firms listed in the U.S. market between 2000 and 2015, I found that foreign firms complying with the full disclosure regulation have less dispersed forecasts and more intense analyst monitoring than U.S. firms, and no evidence of different forecast accuracy between them. On the other hand, foreign firms with regulation exemptions have less accurate and more disperse forecasts than U.S. firms and show evidence of less analyst monitoring. Moreover, using bid-ask spread, standardized unexplained volume (SUV) and illiquidity as proxies for information asymmetry among investors, the results suggest that foreign firms disclosing less frequent and less detailed information are related to a higher level of information asymmetry than similar U.S. firms; while foreign firms disclosing as U.S. firms presented similar, or ever lower, asymmetry levels among investors than similar U.S. firms. Therefore, SEC exemptions are leading to a worse information environment. The results found on prior literature suggesting that foreign firms have a worse information

environment than U.S. firms could be diminished, or even reversed, if the SEC regulated all firms at the same extent.[2]

Keywords: foreign firms; earnings quality; analyst forecasts; information asymmetry; disclosure regulation.

2 Part of this reasearch results were publicated at Moreira, N. C., & Ramos, F. (2019). DOES REPORTING REGULATION AFFECT ANALYST FORECAST PROPERTIES? THE CASE OF FOREIGN FIRMS. Moreira, N.C., & Ramos, F. (2019). DOES REPORTING REGULATION AFFECT EARNINGS QUALITY? THE CASE OF FOREIGN FIRMS. In Anais do XIII Congresso ANPCONT.

CONTENTS

1 INTRODUCTION

The U.S. Securities and Exchange Commission (SEC) is an independent agency of the United States federal government created in 1934. The main responsibility of the SEC is to enforce federal securities laws, propose new securities rules, and to regulate the securities industries—the U.S. stock and option exchanges.

Foreign firms with shares listed on U.S. exchanges must submit themselves to the SEC regulation and enforcement. Prior literature shows that foreign firms with shares cross-listed in the U.S. market receive a valuation premium compared to similar firms in their home country that are not cross-listed (Coffee, 2002). The “bonding” hypothesis (Coffee, 1999; Coffee, 2002) says the premium is due to a lower level of information asymmetry, since the foreign firms are bonding themselves to the higher level of regulation stipulated and enforced by the SEC and the U.S. government, causing an improvement in their corporate governance, quality and frequency of disclosures and compliance. Moreover, analysts can monitor them closely once they cross-list, and institutional investors can negotiate minority protections if the firm wishes to make an initial public offering in the United States. Investors can exercise legal actions and they must provide more complete financial information by following the U.S. accounting standard.

However, the SEC does not regulate all foreign firms with the same strength. The SEC classifies foreign firms with their shares listed in the U.S. market in two groups: Foreign Domestic Issuers (FDIs) and Foreign Private Issuers (FPIs), allowing significant regulatory exemptions for FPIs related to the timeliness, quality and frequency of financial reports, accounting standards and disclosure of private information.

Naughton, Rogo, Sunder and Zhang (2019) show that the SEC is not monitoring foreign firms on the full extent, their results indicate that cross-listed firms have been less monitored than foreign firms listed only on U.S. exchanges. Indicating that the SEC is implicitly sharing its regulatory duties with foreign firms' home country.

This study aims to investigate the consequences of the SEC regulation on the firm's earnings quality, intermediary monitoring, as well as the information asymmetry among investors. First, it investigates whether the disclosure level is positively related with earnings informativeness by analyzing whether foreign firms complying with the full SEC disclosure regulation have similar earnings informativeness levels than U.S. firms, while foreign firms providing less frequent and less detailed disclosures have less informative earnings than U.S. firms.

If a group of foreign firms is not being regulated and monitored at the same strength as other firms, and the production of information is expensive, they have incentives to produce less information about their earnings, or even to manage their earnings, leading to a lower earnings quality than with FDIs and U.S. firms.

Second, it investigates the relation of different disclosure levels with intermediary monitors (analysts). If a group of foreign firms is producing less information about their future earnings and have lower quality of earnings, then analysts have less incentives to monitor these firms, since they know this lack of information is going to affect them negatively when generating less accurate forecasts. Therefore, less frequent and less detailed disclosures are going to implicate in less accurate and more disperse forecasts.

The group of foreign firms complying with the full regulation as U.S. firms is producing as frequent and detailed information as U.S. firms. Thus, analysts are going to have similar incentives to monitors these foreign firms than they would have to

monitor U.S. firms. Moreover, as they are providing the same amount of disclosure they will present similar accuracy and dispersion than U.S. firms.

Thirdly, it analyses the relation of different disclosure levels with the information asymmetry among investors. If a group of foreign firms is producing less information, or even managing their earnings, and there are fewer intermediary monitors producing information about these firms the information asymmetry among investors is going to be higher than for U.S. firms.

On the other side, if foreign firms complying with full disclosure regulation are producing as informative earnings as U.S. firms, with same level of intermediary monitoring levels as well, it is expected that this group of foreign firms will present similar information asymmetry levels than U.S. firms.

To investigate how the SEC disclosure regulation is related to earnings quality, I used a sample containing 6,230 U.S. firms, 121 FDIs and 681 FPIs between 2000 and 2015. Using abnormal accruals as a proxy for earnings quality, I found that FPIs have more abnormal accruals than U.S. firms, on average. I did not find statistical difference in abnormal earnings between FDIs and U.S. firms and similar U.S. firms.

While using earnings smoothness as a proxy for earnings quality, I found a mix of results. Two measures of earnings smoothness indicate that FDIs and FPIs have more artificially smooth earnings than similar U.S. firms; and one measure indicates that FPIs have more artificially smooth earnings than similar U.S. firms while FDIs show less artificial earnings smoothing than similar U.S. firms.

The last proxy used for earnings quality was earnings management to avoid reporting losses. In this case, FPIs showed more propensity to manage earnings to avoid losses than similar U.S. firms; while FDIs are less likely to manage earnings to

avoid losses than similar U.S. firms. Overall, the results indicate only foreign firms disclosing less frequent and less detailed mandatory disclosure have less informative earnings than U.S. firms.

To analyze whether the disclosure regulation is related to the analysts forecast properties I used a sample of firms with securities listed in the U.S. market from 2000 to 2015, including 122 FDIs, 348 FPIs and 4,541 U.S. firms. I also used a size-matched sample, where for each foreign firm a match a U.S. firm at the same fiscal year and industry with similar size, the matching process lead to 119 FDIs, 333 FPIs and 452 U.S. firms.

I found that analysts' earnings forecasts of FPIs are less accurate and more disperse than U.S. firms' earnings forecasts. I did not find evidence of different accuracy for FDIs compared to U.S. firms, and FDIs earnings forecasts are less disperse than U.S. firms' earnings forecasts. The results indicate that FPIs are more likely to have less analysts forecasting their earnings than similar U.S. firms and FDIs, while FDIs are more likely have more analysts following than similar U.S. firms.

Therefore, foreign firms with disclosure exemptions presented a lower level of third party monitoring, less accurate and more disperse than U.S. firms, while foreign firms complying with full disclosure regulation had opposite results, they presented more third party monitoring and less dispersion than similar U.S. firms, and no evidence of different accuracy of earnings forecast compared to U.S. firms.

The third goal was to investigate whether the different disclosure regulation is related to the information asymmetry among investors. In other words, whether the foreign firms disclosing less frequent mandatory disclosures are associated with more information asymmetry among investors.

The final sample contained 143 FDIs, 527 FPIs and 1,478 size-matched U.S. firms, between 2000 and 2015. I used three proxies for information asymmetry: bid-ask spread, standardized unexplained volume (SUV) and Illiquidity.

Foreign firms disclosing less information presented significant more information asymmetry than similar U.S. firms, using all the three proxies; while foreign firms disclosing with the same frequency, the same amount of information, following the same accounting standard than U.S. firms, presented no significant difference of information asymmetry levels than similar U.S. firms using two proxies of information asymmetry, and using the third proxy they presented an even lower level of information asymmetry among investors than similar U.S. firms.

The results found in this study contribute to the regulation of the stock market. It is important for the SEC to protect investors, generating more and better financial information, and reducing information asymmetry among investors. Therefore, it would be better if the SEC applied the same regulation to all foreign firms with securities listed in the U.S. market, since foreign firms enjoying the SEC regulation exemption show lower earnings quality, have less intermediary monitoring, generate worse analyst forecast and have more information asymmetry among investors than U.S. firms, while foreign firms complying with the full SEC regulation show more earnings informativeness, give more and better information, generate better analyst forecast properties and similar, or even less information asymmetry among investors than U.S. firms.

This study contributes to the prior cross-listed literature by creating a sample of foreign firms listed in the U.S. market, distinguishing them between FDIs, FPIs and U.S. firms. It also contributes to the cross-listing literature by extending Lang, Raedy and Wilson (2006) work by analyzing whether the result found for them, that foreign

firms classified as FPIs have lower earnings quality than similar U.S. firms, can be extended when comparing FDIs and U.S. firms or whether this difference in earnings quality between foreign firms and U.S. firms only exists when foreign firms do not follow the same disclosure regulation; by extending Das and Saudagaran (1998) and Das and Saudagaran (2002) work when analyzing the forecast properties of the two groups of foreign firms related to U.S. firms forecasts properties and concluding that not all foreign firms have worse analyst forecast properties than U.S. firms as they found it; and by investigating whether foreign firms are truly bonding themselves to a better regulatory environment, even when SEC gives them disclosure exemptions.

This study also contributes to the analyst forecast literature, helping to better understand the determinants of analyst forecast properties in different groups of firms and different disclosure levels. Therefore, contributing to the stock market by helping investors in not forming unbiased expectations of earnings when looking at analysts' forecasts. It also contributes the mandatory disclosure literature by analyzing whether more frequent mandatory disclosures reduce information asymmetry among investors.

2 DISCLOSURE REGULATION AND EARNINGS QUALITY

2.1 INTRODUCTION

The U.S. Securities and Exchange Commission (SEC) classifies foreign firms listed in the U.S. in two different groups and each group is subject to a different level of disclosure. This study aims to investigate whether the disclosure level stipulated by the SEC affects earnings quality, using abnormal accruals, earnings smoothing and management towards targets as earnings quality measures.

Dechow, Ge and Schrand (2010, p.344) say that “higher quality earnings provide more information about the features of a firm’s financial performance that are relevant to specific decision made by a specific decision-maker”. Therefore, quality of earnings is related to the part of earnings attributable to the firm’s financial performance rather than artificial earnings created by flexibility of accounting standards as the amount of depreciation and provisions, it could also be viewed as earnings informativeness.

Coffee (2002) argues that firms with cross-listing shares in the U.S. market experience a premium compared to similar firms that are not cross-listed because they subject themselves to the enforcement powers of the SEC. However, foreign firms classified as Foreign Private Issuers (FPIs) have significant exemptions related to the frequency, quality and timeliness of mandatory financial disclosures and private information disclosures; while foreign firms classified as Foreign Domestic Issuers (FDIs) are subject to the full disclosure regulation as U.S. firms.

Lang et al. (2006) compare earnings quality of cross-listed and U.S. firms using a matched sample based on past sales growth, industry and year. Their results indicate

that foreign firms cross-listed in the U.S. have lower earnings quality than U.S. firms, but their cross-listed sample does not include FDIs. Therefore, it is relevant to investigate whether foreign firms have less informative earnings in general or whether this difference on earnings informativeness between U.S. firms and foreign firms occurs only when looking at foreign firms disclosing less frequent and less detailed mandatory disclosures.

Moreover, Lang et al. (2006) results suggest that cross-listed firms preparing their financial in full accordance to U.S. GAAP have higher earnings quality than cross-listed firms reconciling to U.S. GAAP. However, preparing a financial statement in full accordance with U.S. GAAP is a voluntary choice for FPIs, generating self-selection problems. It would be better to use FDIs, which must to make their disclosures in full accordance with U.S. GAAP, instead of FPIs voluntarily reconciling to U.S. GAAP.

While there is a large amount of prior literature analyzing earnings quality between foreign firms listed in the U.S. and U.S. firms (Lang et al., 2006; Kang, Krishnan, Wolfe, & Yi, 2012; Chiu & Lee, 2013; Lail, 2014; Chen, Gotti, Herrmann, & Schumann, 2016) they do not consider whether the different regulation level within foreign firms might affect their results. They either define FPIs as the only group of foreign firms or do not distinguish between FPIs and FDIs assuming they are the same.

This paper fills this gap in the literature by creating a database of foreign firms, distinguishing between FPIs and FDIs and analyzing whether SEC disclosure exemptions are related to earnings informativeness of foreign firms when compared to U.S. firms. If the difference in earnings quality between foreign firms and similar U.S. firms found by Lang et al. (2006) was due to the lower level of disclosure which FPIs are subject, it is expected to see no difference in earnings quality of FDIs compared to

U.S. firms, once FDIs are subject to the same level of reporting regulation that U.S. firms.

The final sample includes 6,230 U.S. firms, 121 FDIs and 677 FPIs, with 46,423, 931 and 4,136 observations between 2000 and 2015, respectively. Using abnormal accruals as a proxy for earnings quality, I found that FPIs have more abnormal accruals than U.S. firms, on average. Moreover, I did not find statistical difference in abnormal earnings between FDIs and U.S. firms, the same with similar U.S. firms.

While using earnings smoothness as a proxy for earnings quality I found a mix of results. Two proxies of earnings smoothness indicate that FDIs and FPIs have artificially smoother earnings than similar U.S. firms; the third proxy indicates that U.S. firms have artificially smoother earnings than FDIs and less smooth earnings than FPIs.

Using earnings management to avoid reporting losses as the last proxy for earnings quality, FPIs showed more propensity to manage earnings to avoid losses than similar U.S. firms; while FDIs are less likely to manage earnings to avoid losses than similar U.S. firms.

Overall, the results indicate that FPIs have lower quality of earnings than U.S. firms and FDIs have similar or better earnings quality than U.S. firms. Indicating that when the SEC demands foreign firms to comply with the full disclosure regulation their earnings are as informative or even more informative than U.S. firms' earnings.

In this study I contribute to the cross-listed literature by creating a sample of foreign firms listed in the U.S. market distinguishing them by disclosure regulation level. I identified which foreign firms were classified as FPIs and which of them were classified as FDIs at each fiscal year between 2000 and 2015.

Moreover, this study contributes by extending Lang et al. (2006) work by providing empirical evidence that the difference in earnings informativeness between U.S. and foreign firms only occurs for foreign firms disclosing less frequent and less detailed mandatory disclosures.

The results found in this study also contribute to stock market regulators, providing evidence that foreign firms with regulation exemptions are not “bonding” themselves to the same disclosure level than U.S., implicated in less informative earnings.

2.2 PRIOR LITERATURE AND HYPOTHESES DEVELOPMENT

2.2.1. Foreign Firms Regulation

Foreign firms who trade securities in the U.S. market are classified by the SEC in two groups: Foreign Private Issuers (FPIs) and Foreign Domestic Issuers (FDIs), where FDIs comply with the full disclosure regulation, while FPIs enjoy some exemptions.

The SEC classifies a foreign firm with shares listed in the U.S. market as a Foreign Domestic Issuer (FDI) if more than 50% of the outstanding voting securities are held directly or indirectly of record by U.S. residents, and any of the following are verified:

- most of the executive officers or directors are U.S. citizens or residents, or most of the executive officers or directors are U.S. citizens or residents;
- or more than 50% of the assets are in the U.S.;
- or the business is administered principally in the United States.

Otherwise, the SEC classifies the foreign firm as a Foreign Private Issuer (FPI) and it will enjoy some SEC regulation exemptions exposed at Tables 1 and 2.

Table 1 contains foreign firms regulations related to disclosures of financial statements. FDIs must file their annual report using a 10-K Form while FPIs can disclosure their annual report using a 20-F Form (40-F for Canadian and Israeli firms). A 10-K form has more has less specific disclosure requirements and less time to be filed than the 20-F form.

Another exemption is related to the frequency of financial statements, FDIs must disclose quarterly reports using a 10-Q Form while FPIs are not required to disclose quarterly reports.

TABLE 1: FOREIGN FIRMS REGULATION RELATED TO FINANCIAL STATEMENTS

	FDIs	FPIs
Annual Reporting	Must file annual report using the Form 10-K.	Do not have to file annual report using the Form 10-K, it can use the Form 20-F (or 40-F for Canadian and Israeli firms).
	Form 10-K prescribes specific disclosures and must be filed within 60-90 days after the fiscal year end.	Form 20-F prescribes specific disclosures and must be filed within 4 months after the fiscal year end.
Quarterly Reporting	Must file quarterly reports on Form 10-Q.	Not required.
Periodic Reporting	Must file Form 8-K generally within 4 business days of event to be reported. Prescribes specific disclosures to be made.	Form 6-K to be furnished promptly, after information is made public in-home jurisdiction. No prescribed specific disclosures.
Required Accounting Standards	Financial statements typically prepared in accordance with U.S. GAAP.	Must reconcile to U.S. GAAP, unless financial statements are prepared in accordance with IFRS.

Source: Produced by the author.

Prior November 15, 2007 the SEC required FPIs to reconcile their annual report to Generally Accepted Accounting Principles (U.S. GAAP) if their financial statements

were prepared using any basis of accounting other than U.S. GAAP. At November 15, 2007, the SEC approved a proposal allowing FPIs to prepare financial statements in accordance with International Financial Reporting Standards (IFRS) as published by the International Accounting Standards Board (IASB). Therefore, after this day FPIs no longer have to disclose their financial statements in accordance with U.S. GAAP. This decision did not affect foreign firms classified as FDIs, they still must disclose their annual reports in full accordance to the U.S. GAAP as before.

FPIs are free to voluntarily file their annual reports following the U.S. GAAP or reconciled to U.S. GAAP. However, Kim, Li, and Li (2012) showed that foreign firms with financial statements following the IFRS do not supply the reconciliation to U.S. GAAP voluntarily.

Table 2 contains foreign firms' regulation in regards to private information disclosure. FDIs must file initial statements of beneficial ownership as well as changes in the beneficial ownership of executives and directors, among others, while FPIs are exempt from it.

Exemptions related to disclosure of private information also include compliance with Regulation Fair Disclosure (Reg FD). The Reg FD says that all material non-public information disclosed by the company to a limited group of individuals must be disclosed publicly. Non-intentional sharing of such information must be promptly followed with public disclosures. FDIs must comply with Reg FD, while FPIs are exempt from it.

FDIs also must disclose voting procedures and the candidates nominated for its board of directors, and also any compensation given to directors and executives. However, FPIs do not have do disclose any of them.

TABLE 2: FOREIGN FIRMS REGULATION RELATED TO DISCLOSURE OF INSIDER INFORMATION

	FDIs	FPIs
Disclosure of Beneficial Ownership	Must file initial statements of beneficial ownership as well as changes in the beneficial ownership of executives and directors, among others, and have to comply with Regulation FD.	Not required.
Regulation Fair Disclosure	When the company discloses any material nonpublic information to a limited group of individuals, it must make a public disclosure of that information. Non-intentional sharing of such information must be promptly followed with public disclosures.	Not required.
Proxy Rules	Must disclose voting procedure, nominated candidates for its board of directors, and compensation of directors and executives.	Not required.

Source: Produced by the author.

2.2.2. Hypotheses Development

Prior literature found that foreign firms with shares cross-listed in the U.S. market receive a valuation premium compared to similar firms in the home country that are not cross-listed (Coffee, 2002). According to Coffee (2002), the premium is due to the lower level of information asymmetry, analysts can monitor them closely once they cross-list, and institutional investors can negotiate minority protections if the firm wishes to make an initial public offering in the United States, investors can exercise legal actions and they must provide more complete financial information following the U.S. accounting standard.

Lang et al. (2006) compares U.S. firms' earnings with reconciled earnings from cross-listed non-U.S. firms and their results indicate that non-U.S. firms' earnings are

smoother with greater tendency to manage towards a target, lower association with share price and less timely recognition of losses, concluding that foreign firms have less informative earnings than similar U.S. firms. Since Lang et al. (2006) sample of cross-listed firms is restricted to non-U.S. firms that file annual financial statements using a Form 20-F, which is the form used by FPIs, their results cannot be generalized for FDI.

Most of prior literature looking at differences between U.S. firms and foreign firms earnings quality focus on only one group of foreign firms (FPIs) or consider all foreign firms as equal, not taking in place the differences between FPIs and FDIs (Lang et al., 2006; Kim et al., 2012; Hansen, Pownall, Prakash, & Vulcheva, 2014). However, results presented in Burnett, Jorgensen and Pollard (2017), indicate that the U.S. market sees foreign firms classified as FPIs as lower-value firms compared to FDIs and the value-difference varies within different requirement exemptions.

Thus, it is relevant to study whether the lower value of FPIs is related to less informative earnings compared to FDIs, and whether the SEC exemptions affect earnings quality of foreign firms compared to U.S. firms. In this research, I aim to amplify Lang et al. (2006) results by creating a database of foreign firms, while distinguishing between FPIs and FDIs to investigate whether the earnings informativeness difference between foreign firms and similar U.S. firms also occurs when foreign firms are complying with full disclosure regulation or only when foreign firms are disclosing less information about their earnings.

The Statement of Financial Accounting Concepts No. 1 (SFAC No. 1) issued by the Financial Accounting Standards Board (FASB) states that “Financial reporting should provide information about an enterprise’s financial performance during a period.” Based on this statement Dechow et al. (2010, p.344) define earnings quality

as “higher quality earnings provide more information about the features of a firm’s financial performance that are relevant to a specific decision made by a specific decision-maker”. Therefore, earnings quality could be viewed as earnings informativeness, higher quality earnings provide more relevant information to stakeholders.

I expect that FDIs have as informative earnings as U.S. firm, since FDIs must comply with full mandatory disclosure regulation as U.S. firms, disclosing financial reports with the same frequency and timeliness in full accordance with U.S. GAAP, initial and changes in the beneficial ownership, all material information disclosed to a limited group of individuals following Reg FD. Resulting in the hypothesis H1:

H1: FDIs earnings have the same quality as U.S. firms earnings.

In the other hand, FPIs enjoy several exemptions, having more time to disclose their annual report which can be on a Form 20-F which does not have to be in full accordance with U.S. GAAP but reconciled to U.S. GAAP or IFRS, not having to disclose quarterly reports, beneficial ownership and do not have to comply with Reg FD. Thus, I expect to find the same results as Lang et al. (2006), that FPIs earnings are less informative than U.S. firms earnings, resulting in the hypothesis H2:

H2: FPIs earnings have lower quality than U.S. firms earnings.

2.3. RESEARCH DESIGN

2.3.1. Abnormal Accruals

According Dechow et al. (2010, p.358), “the normal accruals are meant to capture adjustments that reflect fundamental performance, while abnormal accruals are meant to capture distortions induced by application of accounting rules or earnings

management". Thus, higher levels of abnormal accruals indicate more artificial earnings, earnings with lower quality.

To measure abnormal accruals, I use the Modified Jones Model (Dechow, Sloan, & Sweeney, 1995) using two methods. The first method developed by Dechow et al. (1995) consists in estimating the Modified Jones Model by fiscal year and 2-Digit SIC Code using the OLS method[3]:

$$TotalAccruals_{it} = \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_2 (\Delta REV_{it} - \Delta REC_{it}) + \alpha_3 PPE_{it} + \epsilon_{it} \quad (1)$$

$\boldsymbol{TotalAccruals}$ is calculated as income before extraordinary items less cash flow from operations plus extraordinary items and discontinued operations deflated by past total assets, $\boldsymbol{Assets_{t-1}}$ is the past total assets, $\boldsymbol{\Delta REV_t}$ is the change in revenues, $\boldsymbol{\Delta REC_t}$ is the change in receivables and $\boldsymbol{PPE_t}$ is property, plant and equipment. Therefore, the abnormal accruals obtained from the first method is defined as $\boldsymbol{Ab\_acc\_dechow_{it}} = \boldsymbol{\hat{\epsilon}_{it}}$, where $\boldsymbol{\hat{\epsilon}_{it}}$ is the estimated residual from the regression model (1).

The second method developed by Kothari, Leone and Wasley (2005) consists of estimating the Modified Jones Model adjusting for a performance-matched firm's discretionary accrual. Kothari et al. (2005) results show that the Modified Jones model adjusted for a performance-matched firm's discretionary accrual tend to be the best specified measure of discretionary accruals. Therefore, before estimating the Modified Jones Model, I matched each foreign firms with a U.S. firm by fiscal year and 2-Digit SIC Code using the past return over assets (ROA), where ROA is calculated as $ROA_{it} = (Net\ Income_{it})/(Assets_{i,t-1})$. Then, I estimated the Modified Jones Model

[3] All variables were winsorized at 1% level.

using the past ROA matched sample. Therefore, the abnormal accruals obtained from the second method is defined as $Ab\_acc\_kothari = \hat{\epsilon}_{it}$, where $\hat{\epsilon}_{it}$ is the estimated residual from the regression model (1) using the past ROA matched sample.

I adapted Ali and Zhang (2015) methodology to capture the differences in abnormal accruals related to CEO tenure. To analyze whether abnormal accruals vary within U.S. firms, FDIs and FPIs; I estimated the following model using the OLS method with robust standard errors, year and industry fixed effects:

$$\begin{aligned} AbnormalAccruals_{it} &= \beta_0 + \beta_1 FPI_{it} + \beta_2 FDI_{it} + \beta_3 MTB_{it} + \beta_4 Leverage_{it} \\ &+ \beta_5 Loss_{it} + \beta_6 CF_{it} + \beta_7 TotalAccruals_{i,t-1} \\ &+ \beta_8 AssetsGrowth_{it} + \beta_9 EmploymentGrowth_{it} + \beta_{10} Size_{it} \\ &+ \beta_{11} LitigationRisk_{it} + \beta_{12}\, FirmAge_{it} \\ &+ \beta_{13}\, ReconciledGAAP_{it} + \beta_{14}\, IFRS_{it} + \epsilon_{it} \end{aligned} \quad (2)$$

$AbnormalAccruals_{it}$ is $Ab\_acc\_dechow_{it}$ or $Ab\_acc\_kothari_{it}$ for the firm i at fiscal year t, FPI_{it} is a dummy variable indicating if the foreign firm i is classified as FPI at the fiscal year t, FDI_{it} is a dummy variable indicating if the foreign firm i is classified as FDI at the fiscal year t. I included market-to-book ratio (MTB_{it}) to control for high growth prospects. $Leverage_{it}$—the ratio between the total debt and past total assets—is included to control for the firm's distress, because high leverage level is related to distressed firms with more incentive to manage earnings (Becker, Defond, & Jiambalvo, 2010). Since Ashbaugh, LaFond and Mayhew (2003) argued that discretionary accruals models do not completely extract out nondiscretionary accruals that are negatively correlated with cash flows from operations, I included cash flow from operations scaled by past total assets (CF_{it}). Firms reporting losses are less likely

to be engaging in earnings management (Brown, 2001), and to control for that I included a variable to indicate if the firm i has a negative net income at the fiscal year t ($Loss_{it}$). Lagged total accruals ($TotalAccruals_{i,t-1}$) are included to control for past accruals level. Zhang (2007) argues that part of accruals measure investment in working capital accruals, which is part of firms' business growth. To control for this I included $AssetsGrowth_{it}$—measured as the percentage change of total assets—and $EmploymentGrowth_{it}$—measure as the percentage change of employees.

Prior literature shows that larger firms are less likely to report aggressively given the greater political costs (Watts & Zimmerman, 1990), therefore, I included $Size_{it}$, measured as the natural log of past total assets. Following Ali and Zhang (2015), I included $LitigationRisk_{it}$, a dummy variable indicating when the firm operates in a high-litigation industry (SIC Codes 2833-2836; 3570-3577; 3600-3674; 5200-5961, and 7370-7374). $FirmAge_{it}$ is the number of years since the firm first appeared at CRSP, since older firms are likely to be well known with great value in the market and a reputation to protect, and they are less likely to engage in earnings management given the reputational cost. I also included $ReconciledGAAP_{it}$, indicating if the foreign firm i disclosed its financial report reconciled with U.S. GAAP at the fiscal year t, and $IFRS_{it}$ indicating if the foreign firm i disclosed its financial report following IFRS at the fiscal year t, given that IFRS earnings are obtain using different metrics.

2.3.2. Earnings Smoothness

Graham, Harvey and Rajgopal (2005) show that corporate executives are strongly willing to sacrifice long-term value to smooth earnings, holding cash flow volatility constant. The reason for such behavior is because these executives believe that investors perceive firms with smoother earnings as less risky for having more

predictable earnings, leading to a lower risk premium or cost of equity capital. Therefore, artificial smoothness leads to less informative earnings; thus, lower quality earnings.

Prior research comparing cross-country earnings smoothing include Leuz, Nanda and Wysocki (2003) and Lang et al. (2006). Examining earnings smoothing across 31 countries Leuz et al. (2003) show that smooth earnings are associated with low-quality country GAAP, less enforcement, or poor shareholder rights. Lang et al. (2006) analyzed whether foreign firms cross-listed in the U.S. manage earnings more than similar U.S. firms using various measures. They analyzed whether cross-listed firms show more evidence of management than similar U.S. firms to present smoother earnings. Cross-listed firms showed more evidence of smoothing, greater tendency to manage towards earnings targets, lower association with share price and less timely recognition of losses.

Lang et al. (2006) developed their own measure of artificial smoothness controlling for smoothness of fundamental performance. Using a sample where for each foreign firm they matched a U.S. firm more similar based on past sales growth by fiscal year and industry, they measured artificial smoothness as the variance of the residuals from the regression model (3), of annual changes in net income scaled by total assets on control variables for fundamental firm characteristics ($\boldsymbol{\sigma^2_{\Delta NI}}$). Other measures included $\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}}$ and $\boldsymbol{Corr(AT, CF)}$, where $\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}}$ is the variance of the residuals from the regression model (3) of changes in net income over the variance of the residuals from a regression model (4) of changes in cash flow on control variables for fundamental firm characteristics, and $\boldsymbol{Corr(AT, CF)}$ is the Spearman correlation between the residuals from the regression model (5) of total accruals and the residuals

from the regression model (6) of cash flow on control variables for fundamental firm characteristics.

Lang et al. (2006) argued that other factors correlated with the decision of foreign firms to cross-list their shares in the U.S. might affect the characteristics of accounting data. To address this problem, I follow their methodology and create a past sales growth matched sample, where for each foreign firm I match a U.S. firm in the same year and industry (2-Digit SIC Code) based on past sales growth.

Further, I estimated the regressions of annual changes in net income scaled by total assets, changes in cash flow scaled by total assets, total accruals and cash, respectively below, using the OLS model with country fixed effects:

$$\begin{aligned}\Delta NI_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 SalesGrowth_{it} + \beta_3 EquityIssuance_{it} \\ + \beta_4 Leverage_{it} + \beta_5 DebtIssuance_{it} + \beta_6 AssetTurnover_{it} \\ + \beta_7 Profitability_{it} + \epsilon_{it}\end{aligned} \quad (3)$$

$$\begin{aligned}\Delta CF_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 SalesGrowth_{it} + \beta_3 EquityIssuance_{it} \\ + \beta_4 Leverage_{it} + \beta_5 DebtIssuance_{it} + \beta_6 AssetTurnover_{it} \\ + \beta_7 Profitability_{it} + \epsilon_{it}\end{aligned} \quad (4)$$

$$\begin{aligned}TotalAccruals_{it} \\ = \beta_0 + \beta_1 Size_{it} + \beta_2 SalesGrowth_{it} + \beta_3 EquityIssuance_{it} \\ + \beta_4 Leverage_{it} + \beta_5 DebtIssuance_{it} + \beta_6 AssetTurnover_{it} \\ + \epsilon_{it}\end{aligned} \quad (5)$$

$$CF_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 SalesGrowth_{it} + \beta_3 EquityIssuance_{it} + \beta_4 Leverage_{it} + \beta_5 DebtIssuance_{it} + \beta_6 AssetTurnover_{it} + \epsilon_{it} \quad (6)$$

ΔNI is the annual change is the net income scaled by past total assets, ΔCF is the change is the cash flows from operations scaled by past total assets, $SalesGrowth$ is the percentage change on sales, $EquityIssuance$ is the percentage change in common stock, $DebtIssuance$ is the percentage change in total liabilities, $AssetTurnover$ is sales for the period divided by past total assets, $Profitability$ and CF are calculated as cash flows for the period divided by past total assets.

From the regression models (3), (4), (5) and (6) I obtain the estimated residuals $\hat{\epsilon}_{\Delta NI}$, $\hat{\epsilon}_{\Delta CF}$, $\hat{\epsilon}_{\mathrm{AT}}$ and $\hat{\epsilon}_{\mathrm{CF}}$, respectively. Therefore, the measures for artificial earnings smoothing are calculated as $\boldsymbol{\sigma^2_{\Delta NI}} = \boldsymbol{Var}(\hat{\epsilon}_{\Delta NI})$, $\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}} = \boldsymbol{Var}(\hat{\epsilon}_{\Delta NI}) \Big/ Var(\hat{\epsilon}_{\Delta CF})$, $\boldsymbol{Corr(AT, CF)} = Corr(\hat{\epsilon}_{\mathrm{AT}}, \hat{\epsilon}_{\mathrm{CF}})$.

Firms with artificially smoother earnings are expected to show a lower $\boldsymbol{\sigma^2_{\Delta NI}}$ **b**ecause firms with more volatile cash flows will naturally have more volatile net income. The second measure. $\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}}$ adjusts for cash flows variability. According Myers, Myers and Skinner (2007) and Land and Lang (2002), a more negative correlation between $\hat{\epsilon}_{AT}$ and $\hat{\epsilon}_{CF}$ is an indicator of earnings smoothing, because managers respond to poor cash flow outcomes by increasing accruals.

According the hypothesis 2 (H2), I expect that FPI are going to show lower $\boldsymbol{\sigma^2_{\Delta NI}}$, lower $\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}}$ and a more negative $\boldsymbol{Corr(AT, CF)}$ than similar U.S. firms. Indicating that FPIs have lower quality of earnings compared to similar U.S. firms. Following

hypothesis 1 (H1), I do not expect to find any statistical difference of $\boldsymbol{\sigma^2_{\Delta NI}}$, $\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}}$ and $\boldsymbol{Corr(AT, CF)}$ between FDIs and similar U.S. firms.

2.3.3. Managing Earnings Targets

Prior literature found that firms have a tendency to manage earnings to avoid reporting earnings losses (Burgstahler, & Dichev, 1997; Beaver, McNichols, & Nelson, 2003; Phillips, Pincus, & Rego, 2003; Altamuro, Beatty, & Weber, 2005; Kerstein, & Rai, 2007; Jacob, & Jorgensen, 2007; Caramanis, & Lennox, 2008).

Burgstahler and Dichev (1997) show that firms tend to manage earnings to achieve a small positive net income scaled by total assets instead reporting a loss, making their earnings less informative; thus, lower quality earnings.

Following Lang et al. (2006), I use the matched sample based on past sales growth defined at section 3.2 and consider small positive earnings when net income scaled by past total assets is between 0 and 0.01.

To test whether FDIs are more likely to report small positive earnings than similar U.S. firms, I exclude FPIs from the sample and estimate the following regression model using the Logit model:

$$\begin{aligned} FDI_{it} = \beta_0 + \ & \beta_1 SmallPositeNI_{it} + \beta_2\, Size_{it} + \beta_3\, Sales\_Growth_{it} \\ & + \beta_4 Equity\_Issuance_{it} + \beta_5 Leverage_{it} + \beta_6\, Debt\_Issuance_{it} \\ & + \beta_7 Asset\_Turnover_{it} + \beta_8\, Profitability_{it} + \epsilon_{it} \end{aligned} \tag{7}$$

FDI_{it} is a dummy variable equals to 1 if the foreign firm i is classified as a FDI at the fiscal year t, and 0 if firm i is a U.S. firm; $SmallPositeNI_{it}$ is a dummy variable equals to 1 if firm i's net income scaled by past total assets is between 0 and 0.01 at

the fiscal year t, and 0 otherwise. Thus, if FDIs are equally likely to report small positive earnings than matched U.S. firms the coefficient β_1 is going to be statistically insignificant.

To test whether FPIs are more likely to report small positive earnings than U.S. firms, I excluded FDIs from the sample and estimated the following regression model using the Logit model:

$$FPI_{it} = \beta_0 + \beta_1 SmallPositeNI_{it} + \beta_2\, Size_{it} + \beta_3\, Sales\_Growth_{it} + \beta_4 Equity\_Issuance_{it} + \beta_5 Leverage_{it} + \beta_6\, Debt\_Issuance_{it} + \beta_7 Asset\_Turnover_{it} + \beta_8\, Profitability_{it} + \epsilon_{it,} \quad (8)$$

FPI_{it} is a dummy variable equals to 1 if the foreign firm i is classified as FPI at the fiscal year t, and 0 if the firm i is an U.S. firm. Consequently, if FPIs are more likely to report small positive earnings than U.S. firms, then the coefficient β_1 is going to be positive and statistically significant.

2.4. RESULTS

2.4.1. Sample

I collected FPIs information on the SEC's website. The SEC makes available annually FPIs lists from 2000 to 2015. Then, I matched the names on the SEC lists with CRSP historical names and received a CRSP and COMPUSTAT id information for that firm (permno and gvkey). This left names of foreign firms on the SEC FPI lists that I could not match using CRSP historical names, so I hand checked one-by-one using COMPUSTAT and CRSP firms' names. Out of 17,530 firms-years observations from 2000 to 2015, I identified 15,559 firms-years observations. 51.14% of the 1,971

observations left are classified as OTC Market, 40.48% are classified as Debt (NYSE-Debt or OTC-Debt), 2.83% are classified as preferred (AMEX-Preferred, NYSE-Preferred or OTC-Preferred), 4.01% is classified as NYSE Market and the left 1.54% as distributed within AMEX, Capital Market, Global Market, and NMS.

Table 3 shows the sample construction, there are 10,224 U.S. firms, 254 FDIs and 1,192 FPIs after merging COMPUSTAT, CRSP and FPIs' lists. To avoid endogeneity generated by self-selection problems I excluded FPIs voluntarily disclosing a 10-K form, losing 37 FDIs and 143 FPIs. After deleting financial institutions, industries with less than 10 observations per year and observations with no available information about earnings quality proxies and controls, the final sample consists of 6,230 U.S. firms, 931 FDIs and 681 FPIs.

The past ROA matched sample used to calculate the abnormal accruals measure was done following Kothari et al. (2005) methodology described in section 3.1 which contains 5,043 U.S. firms, 931 FDIs and 680 FPIs. The past sales growth matched sample used to calculate earnings smoothing measures and target beating describe at sections 3.2 and 3.3, respectively, contains 5,043 U.S. firms, 931 FDIs and 677 FPIs.

TABLE 3: SAMPLE CONSTRUCTION

	U.S. Firms		**FDIs**		**FPIs**	
	Nº. Of Firms-Years Obs.	**Nº. Of Firms**	**Nº. Of Firms-Years Obs.**	**Nº. Of Firms**	**Nº. Of Firms-Years Obs.**	**Nº. Of Firms**
Merged COMPUSTAT, CRSP and FPIs' Lists (2000-2015) with available information	74,447	10,224	1,624	254	7,739	1,192
Deleted FPIs voluntarily disclosing 10-K Form	0	0	-157	-37	-904	-143
Deleted financial institutions	-14,573	-1,934	-360	-59	-1,945	-273
Deleted industries with less than 10 obs. per year	-762	-49	-8	-1	-43	-7

Deleted obs. with no available information	-12,689	-2,011	-168	-36	-711	-88
FULL SAMPLE	**46,423**	**6,230**	**931**	**121**	**4,136**	**681**
PAST ROA MATCHED SAMPLE	**5,043**	**2,585**	**931**	**121**	**4,112**	**680**
PAST SALES GROWTH MATCHED SAMPLE	**5,043**	**2,703**	**931**	**121**	**4,112**	**677**

Source: Produced by the author.

Figure 1 shows the number of firm-year observations by country—Current ISO Country Code – Incorporation (FIC), displaying the top 17 predominant country. FDIs observations are concentrated on Ireland, United Kingdom, Bermuda, the Netherlands, Cayman Islands and Switzerland; FPIs observations are concentrated mainly on Cayman Islands, Israel, United Kingdom, British Virgin Island and Canada.

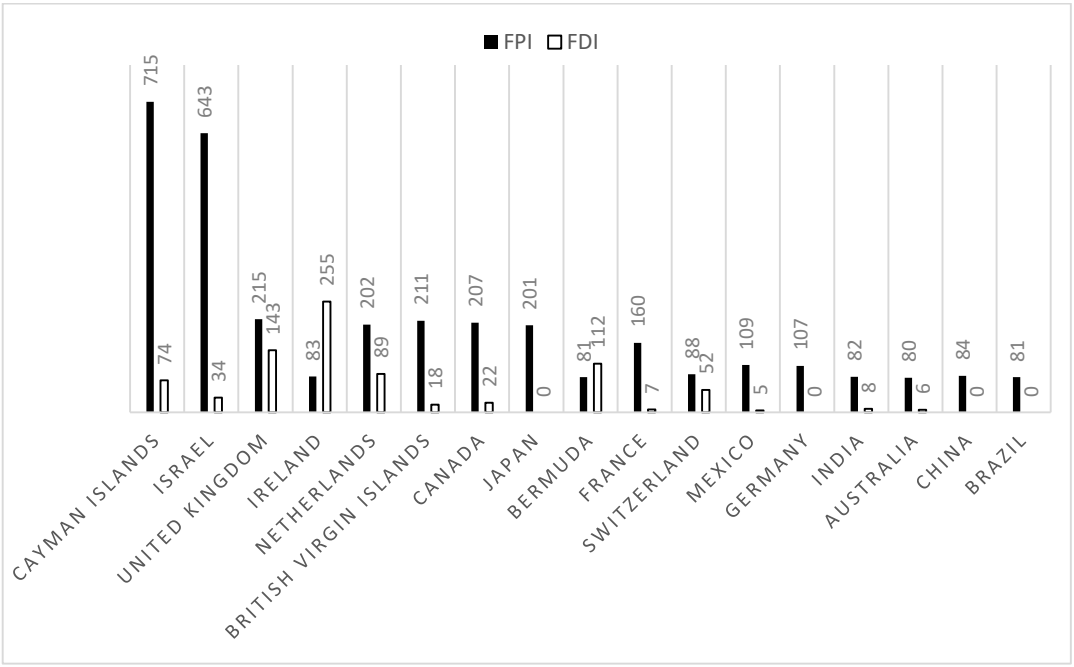

Figure 1: Number of foreign firms' observations by country and status.

2.4.2. Descriptive Statistics

Table 4 contains the descriptive statistics of variables for U.S. firms, FDIs and FPIs at columns (1), (2) and (3), respectively. Columns (4), (5) and (6) present the p-value of the mean tests; where the columns **US-FDI, US-FPI** and **FDI-FPI** contain the

p-value of the hypotheses tests $H_0: \mu_{US} - \mu_{FDI} = 0$, $H_0: \mu_{US} - \mu_{FPI} = 0$ and $H_0: \mu_{FDI} - \mu_{FPI} = 0$, respectively.

The means and means tests indicate that FDIs are bigger than FPIs and U.S. firms, and FPIs are smaller than U.S. firms, on average. Consistent with results found by Lang et al. (2006), where FPIs showed an average size of 8.39 against 5.88 for similar U.S. firms.

The MTB mean of U.S. firms is 2.91, indicating U.S. firms are overvalued, on average. However, FDIs presented a higher MTB mean than U.S. firms, suggesting

TABLE 4: DESCRIPTIVE STATISTICS

	(1)		(2)		(3)		(4)	(5)	(6)
	US		FDI		FPI		US-FDI	US-FPI	FDI-FPI
	MEAN	STD	MEAN	STD	MEAN	STD		Mean Test Pr(|T|>|t|)	
Full Sample[a]									
Ab_Acc_Dechow	-0.0004	0.1554	-0.0026	0.1399	0.0138	0.1400	0.6721	0.0000	0.0013
TotalAccruals	-0.0832	0.1386	-0.6521	0.1103	-0.0626	0.1193	0.0001	0.0000	0.5353
1/Assets$_{t-1}$	0.0159	0.0318	0.0062	0.0211	0.0096	0.0246	0.0000	0.0000	0.0001
ΔREV-ΔREC	0.0754	0.2666	0.0722	0.2255	0.0691	0.2301	0.7165	0.1417	0.7097
PPE	0.5111	0.4201	0.4478	0.3605	0.5228	0.4386	0.0000	0.0862	0.0000
MTB	2.9082	4.5892	3.4097	5.1272	2.4873	3.6311	0.0010	0.0000	0.0000
Leverage	0.2189	0.2470	0.2667	0.2568	0.1967	0.2094	0.0000	0.0000	0.0000
CF	0.3672	0.2154	0.0985	0.1676	0.0643	0.1793	0.0000	0.0000	0.0000
AssetsGrowth	0.1312	0.4681	0.1799	0.4386	0.1677	0.4758	0.0017	0.0000	0.4749
EmploymentGrowth	0.0660	0.2930	0.1084	0.3060	0.0842	0.2919	0.0000	0.0001	0.0237
Size	5.6956	1.9957	7.3895	2.0228	6.8503	2.4014	0.0000	0.0000	0.0000
NI	-0.0477	0.2702	0.0323	0.1924	0.0041	0.2051	0.0000	0.0000	0.0001
FirmAge	15.3018	12.7336	15.6359	14.1986	9.3540	8.2903	0.4291	0.0000	0.0000
Nº Obs.	46,423		931		4,136				
Past Roa Matched Sample[b]									
Ab_Acc_Kothari	0.0033	0.1340	-0.0017	0.13302	0.1391	0.1333	0.3015	0.0002	0.0013
Nº Obs.	5,043		931		4,112				
Past Sales Growth Matched Sample[c]									
ΔNI	-0.0038	0.2019	-0.0016	0.17643	-0.011	0.173	0.7578	0.0808	0.1475
ΔCF	0.0796	0.2027	0.06483	0.17644	0.0513	0.1797	0.0371	0.0000	0.0381
SalesGrowth	0.1363	0.4269	0.16492	0.39982	0.1659	0.4567	0.0582	0.0014	0.9512
EquityIssuance	0.1249	0.5139	0.12868	0.50582	0.1273	0.5307	0.8358	0.8234	0.9439
DebtIssuance	0.1891	0.6302	0.24252	0.67696	0.2029	0.5905	0.0190	0.2861	0.0722
AssetTurnover	1.1050	0.8078	0.94488	0.57821	0.8526	0.5815	0.0000	0.0000	0.0000
Profitability	0.0376	0.2091	0.09921	0.16565	0.0652	0.1768	0.0000	0.0000	0.0000
Nº Obs.	5,043		931		4,112				

[a] ***Ab_acc_dechow*** is the estimated residual from Eq. (1) using the full sample. ***TotalAccruals*** is calculated as income before extraordinary items less cash flow from operations plus extraordinary items and discontinued operations deflated by past total assets. ***1/Assets$_{t-1}$*** is one scaled by the past total assets. ***(ΔREV-ΔREC)*** is the difference between the change in revenues and the change in receivables. ***PPE*** is property, plant and equipment. ***MTB*** is the market value of equity scaled by the book value of equity. ***Leverage*** is the ratio between the total debt and past total assets. ***CF*** is cash flow from operations scaled by past total assets. ***TotalAccruals$_{t-1}$*** is the past total accruals. ***AssetsGrowth*** is the percentage change of total assets. ***EmploymentGrowth*** is the percentage change of employees. ***Size*** is the natural log of lagged total assets. ***NI*** is net income scaled by past total assets. ***FirmAge*** is the number of years since the firm first appeared at CRSP. [b]***Ab_acc_kothari*** is the estimated residual from Eq. (1) using the past ROA matched sample. [c]∆***NI*** is the change in net income scaled by past total assets. ∆***CF*** is the change in cash flow scaled by past total assets. ***SalesGrowth*** is the change in sales scaled by past sales. ***EquityIssuance*** is the percentage change in common stock. ***DebtIssuance*** is percentage change in liabilities. ***AssetTurnover*** is sales for the period divided by lagged total assets. ***Profitability*** is cash flow from operations scaled by past total assets. All variables were winsorized at 1% level.

Source: Produced by the author.

that FDIs are even more overvalued than U.S. firms, on average. FDIs also presented higher leverage than U.S. firms, while FPIs presented less leverage than U.S. firms.

Using the full sample, U.S. firms, FDIs and FPIs presented average abnormal accruals (Ab_Acc_Dechow) of -0.0004, -0.0026 and 0.0138, respectively. Using the past ROA matched sample U.S. firms, FDIs and FPIs presented average abnormal accruals ($Ab\_Acc\_Kothari$) of 0.0033, -0.0017 and 0.0139, respectively. While FPIs presented more abnormal accruals than U.S. firms, on average, I cannot reject the hypothesis that U.S. firms and FDIs have the same level of abnormal accruals, on average—using both samples. Indicating that FPIs have less informative earnings than U.S. firms to, while FDIs and U.S. firms presented no statistical difference. Going on the direction of my hypotheses **H1** and **H2** that FDIs and U.S. firms have similar earnings quality and FPIs have lower earnings quality than U.S. firms.

FDIs also have similar age, changes in net income, and equity issuance than U.S. firms, while FPIs presented statistically similar equity issuance and debt issuance than U.S. firms, on average.

FDIs presented evidences of less abnormal accruals, more overvalue, more leverage, more cash flow, more employment growth, more assets, more net income, more years of listing and more changes in cash flows than FPIs.

2.4.3. Abnormal Accruals

Table 5, column (1) contains the results of the estimated regression (2) where the dependent variable is the abnormal accruals calculated by the Modified Jones model with the full sample; including expected sign, estimated coefficient and t statistics. Table 5, column (2) presents the results of the estimated regression (2)

where the dependent variable is the abnormal accruals calculated by the Modified Jones model using the past ROA matched sample.

The FPI coefficient is positive statistically significant at level 1% on both cases. On column (1) the FPI coefficient is 0.0218 which represents an increase of 5.644% on U.S. firms' abnormal accruals average. On column (2) the FPI coefficient is 0.0129, representing an increase of 394.57% on U.S. firms' abnormal accruals average.

On both cases the FDI coefficient was statistically insignificant, as expected, following hypothesis H1. Therefore, there is no evidence that FDIs have different earnings quality than U.S. firms or similar U.S. firms.

TABLE 5: ABNORMAL ACCRUALS

		(1) Ab_Acc_Dechow[b]			(2) Ab_Acc_Kothari[c]	
Variables[a]	**Exp. Sign**	**Coef.**	**t-Stat.**	**Exp. Sign**	**Coef.**	**t-Stat.**
FDI	**no sig.**	0.0046	(0.98)	**no sig.**	-0.0004	(-0.07)
FPI	**+**	0.0218	(6.08)***	**+**	0.0129	(3.13)***
MTB		-0.0003	(-1.16)		-0.0002	(-0.29)
Leverage		-0.0136	(-3.22)***		-0.0279	(-3.29)***
Loss		-0.1120	(-59.13)***		-0.1170	(-31.51)***
CF		-0.1820	(-23.99)***		-0.3080	(-17.58)***
$TotalAccruals_{t-1}$		0.1410	(19.17)***		0.1090	(6.82)***
AssetsGrowth		-0.0084	(-2.39)**		0.0124	(1.71)*
EmploymentGrowth		0.0009	(0.21)		-0.0135	(-1.65)*
Size		-0.0085	(-19.73)***		-0.0069	(-8.53)***
LitigationRisk		-0.0104	(-3.74)***		-0.0072	(-1.46)
FirmAge		0.0006	(12.34)***		0.0004	(3.62)***
ReconciledUSGAAP		0.0057	(1.37)		0.0062	(-0.01)
IFRS		0.0053	(0.96)		0.0074	(1.86)*
Year Fixed Effects		Yes			Yes	
Industry Fixed Effects		Yes			Yes	
Nº Obs.		51,490			10,086	
Adj. R^2		13.40%			19.40%	
Test on coefficients				**F-Stat.**		
FPI - FDI		(12.47)***			(7.27)***	

[a] ***FPI*** is a dummy variable equals to 1 if the firm is a foreign firm classified as FPI and 0 otherwise. ***FDI*** is a dummy variable equals to 1 if the firm is a foreign firm classified as FDI and 0 otherwise. ***MTB*** is the market value of equity scaled by the book value of equity. ***Leverage*** is the ratio between the total debt and lagged total assets. ***Loss*** is a dummy variable equals to 1 if the firm reported negative net income that year and zero otherwise. ***CF*** is cash flow from operations scaled by past total assets. ***TotalAccruals$_{t-1}$*** is the past total accruals. ***AssetsGrowth*** is the percentage change of total assets. ***EmploymentGrowth*** is the percentage change of employees. ***Size*** is the natural log of past total assets. ***LitigationRisk*** is a dummy variable indicating when the firm operates in a high-litigation industry (SIC Codes 2833-2836; 3570-3577; 3600-3674; 5200-5961, and 7370-7374). ***FirmAge*** is the number of years since the firm first appeared at CRSP. ***ReconciledUSGAAP*** is a dummy variable equal to1 if the foreign firm published its annual report reconciled to US GAAP and 0 otherwise. ***IFRS*** is a dummy variable equal to1 if the foreign firm published its annual report following IFRS and 0 otherwise. [b] ***Ab_acc_dechow*** is the estimated residual of Eq. (1) using the full sample. [c] ***Ab_acc_kothari*** is the estimated residual of Eq. (1) using the past ROA matched sample.
* Statistical significance at the 10% level based on robust standard errors (two-tailed p-values in parenthesis).
** Statistical significance at the 5% level based on robust standard errors (two-tailed p-values in parenthesis).
*** Statistical significance at the 1% level based on robust standard errors (two-tailed p-values in parenthesis).
All variables were winsorized at 1% level.
Source: Produced by the author.

2.4.4. Earnings Smoothness

The second proxy used for earnings quality was artificial earnings smoothing, captured by $\boldsymbol{\sigma^2_{\Delta NI}}$, $\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}}$ and $\boldsymbol{Corr(AT, CF)}$. Table 6 presents the artificial earnings smoothing results.

Recording that more $\boldsymbol{\sigma^2_{\Delta NI}}$, more $\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}}$ and more negative $\boldsymbol{Corr(AT, CF)}$ indicate more artificial smooth earnings, the results found were conflicting. FDIs presented a statistically significant (p-value=0.000) less $\boldsymbol{\sigma^2_{\Delta NI}}$ than similar U.S. firms and a more negative $\boldsymbol{Corr(AT, CF)}$**,** suggesting that FDIs have, on average, more artificial earnings smoothing than similar U.S. firms. However, FDIs showed a higher $\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}}$ than similar U.S. firms, indicating that FDIs have less artificial earnings smoothing than similar U.S. firms.

TABLE 6: EARNINGS SMOOTHING

	(1) US	(2) FDI	(3) FPI
$\sigma^2_{\Delta NI}$ [a]	3.36E-02	2.41E-02	2.41E-02
P-Value [b]		(0.0000)	(0.0000)
$\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}}$ [c]	1.0125	1.0662	0.9737
$Corr(AT, CF)$ [d]	-0.0283	-0.1653	-0.2181

[a] $\sigma^2_{\Delta NI}$ is the variance of the estimated residual of the regression model at Eq. (3). [b] ***P-Value*** is the p-value for the variance test of ΔNI comparing the respective group to U.S. firms. [c] $\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}}$ is the variance of the estimated residual of the regression model at Eq. (3) scaled by the variance of the estimated residual of the regression model at Eq. (4). [d] $Corr(AT, CF)$ is the Spearman correlation between the estimated residual of the regression model at Eq. (5) and the estimated residual of the regression model at Eq. (6).

Source: Produced by the author.

Results relating FPIs and U.S. firms were also conflicting. Results for $\sigma^2_{\Delta NI}$ and $Corr(AT, CF)$ as artificial earnings smoothing, suggest that FPIs have more artificial earning smoothing than similar U.S. firms; while using $\frac{\sigma^2_{\Delta NI}}{\sigma^2_{\Delta CF}}$ **to** suggest the opposite.

2.4.5. Managing Earnings Targets

Table 7 columns (1) and (2) show the coefficients estimated from the regression models (7) and (8) described at Section 3.3, respectively.

The coefficient of ***Small Positive NI*** is negative and statistically significant when estimating the regression model (7), using a sample with only FDIs and U.S. firms, indicating that FDIs are less likely to manage earnings to avoid reporting losses than similar U.S. firms.

When using a sample containing only FPIs and U.S. firms and estimating the regression model (8) the coefficient of ***Small Positive NI*** is positive and statistically

significant, suggesting that FPIs are more likely to manage earnings to avoid reporting losses than similar U.S. firms.

Therefore, when using managing earnings targets as a measure of earnings quality, the results indicate that FDIs have more informative earnings than similar U.S. firms and FPIs have less informative earnings than similar U.S. firms.

TABLE 7: TARGET BEATING

	(1) Sample: FDIs and U.S. Firms FDI[b]			(2) Sample: FPIs and U.S. Firms FPI[c]		
Variables[a]	**Exp. Sign**	**Coef.**	**t-Stat.**	**Exp. Sign**	**Coef.**	**t-Stat.**
Small Positive NI	**no sig.**	-0.4417	(-2.05)**	**no sig.**	0.1753	(1.58)
Size	**+**	0.3463	(15.82)***	**+**	0.2456	(7.89)***
Sales Growth		0.3124	(3.00)***		0.4070	(6.06)***
Equity Issuance		0.1599	(2.02)**		0.1406	(2.93)***
Leverage		0.3126	(1.71)*		-0.6714	(-2.86)***
Debt Issuance		0.1457	(2.06)**		0.1673	(3.49)***
Asset Turnover		-0.3615	(-7.10)***		-0.8195	(-8.46)***
Profitability		1.1663	(3.45)***		0.4162	(1.56)
Nº Obs.		5,974			9,137	
Pseudo R-Squared		10.30%			9.21%	

[a]***Small Positive NI*** is a dummy variable equal to 1 if the net income over past total assets is between 0 and 0.01 and 0 otherwise. ***Size*** is the natural log of past total assets. ***Sales Growth*** is the percentage change on sales. ***Equity Issuance*** is the percentage change in common stock. ***Leverage*** is total debt scaled by past total assets. ***Debt Issuance*** is the percentage change in total liabilities. ***Asset Turnover*** is sales scaled by past total assets. ***Profitability*** is cash flow from operations scaled by past total assets. [b] ***FDI*** is equal to 1 for foreign firms classified as FDIs and 0 for U.S. firms. [c] ***FPI*** is equal to 1 for foreign firms classified as FPIs and 0 for U.S. firms.
* Statistical significance at the 10% level based on robust standard errors (two-tailed p-values in parenthesis).
** Statistical significance at the 5% level based on robust standard errors (two-tailed p-values in parenthesis).
*** Statistical significance at the 1% level based on robust standard errors (two-tailed p-values in parenthesis). All variables were winsorized at 1% level.
Source: Produced by the author.

2.5 CONCLUSION

In this study I aimed to analyze whether the difference in earnings quality between foreign firms listed in the U.S. market and U.S. firms exists due to the different

level of disclosure. In other words, to investigate whether foreign firm have lower earnings quality than U.S. firms in general or just when they disclose less detailed and less frequently than U.S. firms.

Using abnormal earnings, earnings smoothness and managing towards earnings targets as proxies for earnings quality the results found indicate that foreign firms with disclosure exemptions have lower earnings quality than U.S. firms, as found on prior literature. However, foreign firms complying with full disclosure regulation presented similar, or even better, quality of earnings than U.S. firms.

Therefore, the lower levels of earnings informativeness of foreign compared to U.S. firms only exists when foreign firms do not comply with the full disclosure regulation.

3 DISCLOSURE REGULATION AND ANALYSTS' EARNINGS FORECASTS

3.1 INTRODUCTION

This paper examines whether there are systematic differences in analysts' earnings forecasts within the two groups of foreign firms, Foreign Private Issuers (FPIs) and Foreign Domestic Issuers (FDIs), compared to U.S. firms. I analyzed the properties of earnings forecast such as forecast accuracy, dispersion and number of analysts following.

Foreign firms with shares listed on U.S. exchanges are classified by the SEC either as FDI or FPI. FDIs must comply with the full disclosure regulation, while FPIs experience exemptions related to the frequency, quality and timeliness of mandatory financial disclosures, accounting standards and private information disclosures.

Prior literature suggests that a foreign firm cross-listing its shares in the U.S. market experience an improvement in the company's corporate governance by "bonding" itself to another market via increased voluntarily disclosures and compliance to a more restrict regulation and laws (Coffee, 1999; Coffee, 2002). Lail (2014) argues that while some might think that foreign firms are bonding themselves to the U.S. regulation and reporting quality, their results suggest that foreign firms are more interested in the reputational gains associated with a listing in the U.S.

Naughton et al. (2019) show that SEC is not monitoring foreign firms on the full extent, and their results indicate that cross-listed firms are less monitored than foreign firms listed only on US exchanges, indicating that the SEC is implicitly sharing regulatory duties with foreign firms' home countries. This makes the role of analysts

critical as to the incremental monitoring and superiority of their information and knowledge about the firm.

Prior research found that foreign firms with cross-listed shares in the U.S. market experience an increase in analyst following and more accurate earnings forecasts than foreign firms with non-cross-listed shares, leading to higher valuations through the effect on the firms' information environment (Lang, Lins, & Miller, 2003). On the other hand, Das and Saudagaran (1998) and Das and Saudagaran (2002) found that analysts' forecasts for cross-listed firms are less accurate and there exists less consensus between analysts' forecasts than U.S. firms.

Hope (2003) and Lang and Lundholm (1996) results show that disclosure policies and accounting standards affect analysts' forecast properties. Lang and Lundholm (1996) provide evidence that firms with more informative disclosure policies have more analysts following them, that they also present more accurate analyst earnings forecasts, and show less dispersion among individual analyst forecasts. Hope (2003) found that firms who disclose more information about their accounting policies in their annual report are related to more accurate analysts' forecasts and with less dispersion. Therefore, the different reporting and disclosure regulation between foreign firms listed on U.S. exchanges might lead to different analysts' forecast properties.

In this sense, it would be relevant for both investors and researchers to investigate whether the different reporting regulation for foreign firms are related to analysts monitoring level and precision. In other words, whether the differences between analyst forecast properties and monitoring level between U.S. firms and foreign firms vary when comparing them with foreign firms complying with full disclosure regulation and foreign firms with significant disclosure exemptions.

I used a sample of foreign firms listed in the U.S. market from 2000 to 2015, including 122 FDIs, 348 FPIs and 4,541 U.S. firms. I also used a size-matched sample, where for each foreign firm a matched the closest U.S. firm based on size, at the same fiscal year and industry. The matching process lead to 122 FDIs, 348 FPIs and 452 U.S. firms. FDIs observations are predominantly from Bermuda, Ireland, United Kingdom, Switzerland and The Netherlands, FPIs observations are concentrated at the Cayman Islands, Israel, Marshall Islands, Bermuda and United Kingdom.

Consistent with Das and Saudagaran (1998) and Das and Saudagaran (2002) results, foreign firms classified as FPIs showed evidence of less analyst monitoring, less accurate earnings forecasts and less consensus among analysts than with similar U.S. firms. Extending Das and Saudagaran (1998) and Das and Saudagaran (2002) studies, I found evidence that foreign firms classified as FDIs have opposite results, they have more analyst following and more earnings forecasts consensus than similar U.S. firms and show no evidence of different accuracy of earnings forecast.

Therefore, the lower monitoring level for foreign firms compared to U.S. firms found by Das and Saudagaran (1998) and Das and Saudagaran (2002) only prevails for foreign firms who are providing less frequent and less detailed disclosures. When analyzing foreign firms complying with full disclosure, the monitoring level is higher than U.S. firms.

This study contributes to the analyst forecast literature, helping to better understand the determinants of analyst forecasts properties in different groups of firms and different disclosure level. Therefore, contributing to the stock market by helping them form unbiased expectations of earnings when looking at analysts' forecasts. This study also contributes to the cross-listing literature, as it extends Das and Saudagaran (1998) and Das and Saudagaran (2002) work by analyzing the forecast properties of

the two groups of foreign firms, compared to U.S. firms forecast properties and concluding that not all foreign firms have worse analyst forecast properties than U.S. firms as they found it. Moreover, this study also contributes to foreign firm regulation, by proving evidence that foreign firms complying with the full disclosure regulation present better levels of third party monitoring than U.S. firms, while foreign firms with disclosure exemptions are related to lower third party monitoring levels, indicating that the disclosures they are providing are not enough to provide good forecasts.

3.2 PRIOR LITERATURE AND HYPOTHESES DEVELOPMENT

Prior literature documented that analysts' forecasts and recommendations affect stock prices (Givoly, & Lakonishok, 1979; Lys, & Sohn, 1990; Francis, & Soffer 1997) as well as ratings (Cheng, & Subramanyam, 2008), suggesting that analysts are important information intermediaries granting more information for stockholders. Therefore, it is important to investigate whether different disclosure regulation generate different quality information provided by third party intermediaries.

Das and Saudagaran (1998) compared cross-listed firms on U.S. exchanges with size-matched U.S. firms in the period of 1984 to 1989. Their results show that there is a significant difference between cross-listed and similar U.S. firms forecast accuracy and bias. Cross-listed have less accurate and more disperse earnings forecasts than similar U.S. firms during the earlier forecasts' horizons. There is also evidence that analysts show less optimism with respect to cross-listed firms' earnings than U.S. firms' earnings.

Das and Saudagaran (2002) applied the same methodology that Das and Saudagaran (1998) used to an extended non-U.S. cross-listed sample period (1984 to 1993) and a different control sample (U.S. Multinationals). Consistent with Das and

Saudagaran (1998), earnings forecasts of U.S. firms are more accurate than earnings forecast of foreign firms, when they are listed in the NASDAQ and AMEX. However, there is no difference in the accuracy between foreign and U.S. firms listed in the NYSE.

However, neither Das and Saudagaran (1998) or Das and Saudagaran (2002) considered the differently regulated groups of foreign firms, in fact they treated all cross-listed firms as one group only. As discussed previously in the section 2.2.1., when analyzing foreign firms classified as FDIs and FPIs separately, the different disclosure regulation is expected to lead to different results when comparing with U.S. firms.

According Lang and Lundholm (1996) arguments and results, if it is less costly to receive information from the firm than to acquire it independently from other sources, more disclosure will cause an increase in the equilibrium number of analysts. Moreover, if analysts use similar forecast models but differ primarily in their private information, it is expected to be a negative relation between disclosure and forecast dispersion. They also argue and find that forecast accuracy is expected to be positively related to the informativeness of a firm's disclosure policy, in that firm-provided disclosure is relevant and informative about future earnings. Concluding that more and better disclosure lead to more analysts monitoring the firm, less forecast among individual analysts and more accurate forecasts.

The section 2.2.1. describes the different regulation for foreign firms listed on U.S. exchanges, where foreign firms classified as FDIs must comply with full disclosure regulation as U.S. firms, while foreign firms classified as FPIs have some exemptions related to the amount of information that must be disclosed, the timeliness and frequency of mandatory disclosures.

Therefore, if more frequent and more detail disclosures are related to better analysts forecast characteristics, it would be expected that FPIs have less analyst monitoring, less accurate forecasts and less consensus among analysts' forecasts than U.S. firms, given that FPIs provide less frequent and less detailed disclosures. Leading to hypothesis 1:

H1: FPIs have worse analyst forecast properties than U.S. firms.

On the other side, since FDIs are following the same disclosure requirements than U.S. firms, it would be expected that FDIs have similar analysts forecast characteristics than U.S. firms.

However, Lundholm, Rogo and Zhang (2014) examined the readability of mandatory and voluntarily disclosed reports between foreign firms listed in the U.S. market and U.S. firms, and their results showed that foreign firms write clearer text and use more numbers than U.S. firms. They argued that foreign firms listed in the U.S. are making an effort to mitigate U.S. investors home bias that makes than averse to invest in foreign firms by increasing the quality of their disclosures.

In this direction, even following the same disclosure regulation, FDIs might disclose more and better information than U.S. firms in an effort to reduce home bias. If that occurs, and better forecast properties are related to more and better disclosures, it is expected that FDIs will have better analyst forecast properties than U.S. firms. Thus, I have hypothesis H2:

H2: FDIs have similar or better analyst forecast properties than U.S. firms.

FPIs might try to reduce home bias by complying with full regulation voluntarily. However, given the endogeneity problems of voluntarily choices I excluded these FPIs and focused only on FPIs that are using the regulation exemptions.

3.3. RESEARCH DESIGN

3.3.1. Analyst Forecast Properties

Following prior literature (Lang & Lundholm, 1996; Mikhail, Walther, & Willis, 1997; Duru & Reeb, 2002; Hong & Kubik, 2003; Hope, 2003; Chen, Krishnan, & Sami, 2015; Ayres, Huang, & Myring, 2017; Wang & Yu, 2017), to capture analysts forecast properties, I used the proxies for accuracy, dispersion and analyst following described below; where more accuracy, less dispersion and more analyst following means better analyst forecast properties.

$\boldsymbol{Accuracy_{it}}$, the proxy for forecast accuracy, is measured as the negative of the absolute value of the analyst forecast error, deflated by stock price, where EPS_{it}, $MeanForecast_{it}$ and P_{it} are earnings per share, the mean analysts' forecast of earnings per share and price per share in period t, respectively:

$$Accuracy_{it} = -\left|\frac{EPS_{it} - MeanForecast_{it}}{P_{it}}\right| \quad (9)$$

$\boldsymbol{Dispersion_{it}}$ is the inter-analysts standard deviation of forecasts deflated by stock price, where $StdForecast_{it}$ is the inter-analysts' forecasts standard deviation:

$$Dispersion_{it} = \frac{StdForecast_{it}}{P_{it}} \quad (10)$$

Analyst Following is the number of unique analysts issuing at least one forecast for firm i during the 90 days before the actual EPS was disclosed for period t.

3.3.2. Econometric Models

To capture different accuracy and dispersion between U.S. firms, FPIs and FDIs, I estimate equations (11) and (12), using a Tobit model with robust standard errors, including year and industry fixed effects. The equation (11) requires a Tobit model using 0 as upper limit when using $Accuracy_{it}$ is never positive; and the equation (12) requires a Tobit model using 0 as lower limit, because $Dispersion_{it}$ is never negative.

$$Accuracy_{it} = \alpha_0 + \alpha_1 FPI_{it} + \alpha_2 FDI_{it} + \sum \alpha_k Control_{it}^k + \varepsilon_{it} \quad (11)$$

$$Dispersion_{it} = \beta_0 + \beta_1 FPI_{it} + \beta_2 FDI_{it} + \sum \beta_k Control_{it}^k + \varepsilon_{it} \quad (12)$$

FPI_{it} is a dummy variable assuming 1 if the foreign firm i is classified as FPI at the period t and 0 otherwise, and FDI_{it} is a dummy variable assuming 1 if the foreign firm i is classified as FDI at the period t and 0 otherwise. Thus, α_1 and β_1 are capturing the incremental accuracy and dispersion of FPIs earnings forecasts compared to similar U.S. firms, respectively; and α_2 and β_2 are capturing the incremental accuracy and dispersion of FDIs earnings forecast compared to U.S. firms, respectively.

To measure whether there is a different number of analysts following U.S. firms, FPIs and FDIs, I estimated equation (13) using Poisson model with robust standard errors, including year and industry fixed effects:

$$AnalystFollowing_{it} = \gamma_0 + \gamma_1 FPI_{it} + \gamma_2 FDI_{it} + \sum \gamma_k Control_{it}^k + \varepsilon_{it} \quad (13)$$

Therefore, γ_1 is capturing the probability of FPIs to have more analysts following than U.S. firms, and γ_2 is capturing the probability of FDIs to have more analysts following than U.S. firms.

The control variables included have been shown in prior work to be related to forecast properties (Lang & Lundholm, 1996; Chaney, Hogan, & Jeter, 1999; Duru & Reeb, 2002; Chen et al., 2015; Ayres et al., 2017; Wang & Yu, 2017).

Since there is more information available on larger firms, size is expected to impact on forecast properties. Thus, I controlled for size, measured as the natural logarithm of total assets. I also controlled for leverage, measured as total debt scaled by total assets, because earnings for firms with high leverage are more volatile making it harder for analysts to forecast future earnings. Prior research shows that earnings and their attributes are related to forecast properties (Hwang, Jan, & Basu, 1996; Eames, Glover, & Kennedy, 2002). Thus, I controlled for earnings level by including return on assets, calculated as net income scaled by past total assets. I also included a dummy variable for negative net income (Brown, 2001), earnings volatility (Gu & Wang, 2005) and change in earnings per share ($\Delta Earnings$) (Lang & Lundholm, 1996).

Once firms with higher growth prospects are harder to predict, I controlled for growth prospects including the market-to-book ratio (MTB) (Tan, Wang, & Welker, 2011; Barniv & Myring, 2015). Equations (11) and (12) also include $AnalystFollowing$ as a control variable.

3.4 RESULTS

3.4.1. Sample

The collection of FPIs information and the matching procedure of FPIs' lists with COMPUSTAT and CRSP firms' names are the same described at section 2.4.1., which lead to 15,559 firms-years observations of identified FPIs.

I drew financial information from COMPUSTAT, returns and stock prices from CRSP, and analyst information from I/B/E/S. Table 8 shows the sample construction process. After merging COMPUSTAT, CRSP, and I/B/E/S with the FPIs lists information, I excluded FPIs voluntarily disclosing 10-K Forms to avoid self-selection problems and observations and firm-year observations with missing information, resulting in the full sample with 4,541 U.S. unique firms, 121 unique FDIs and 348 unique FPIs.

Following prior literature (Das & Saudagaran, 1998; Lang et al., 2003), I performed a size-matching without replacement. For each foreign firm, I matched a U.S. firm in the same industry code (2-Digit SIC Code) and in the same fiscal year, with similar size (natural logarithm of total assets). This procedure should control for forecast properties changes specific to a firm's fiscal year, industry and size, but unrelated to the different regulation.

TABLE 8: SAMPLE CONSTRUCTION

	U.S. Firms		FDIs		FPIs	
	Nº. Of Firms-Years Obs.	Nº. Of Firms	Nº. Of Firms-Years Obs.	Nº. Of Firms	Nº. Of Firms-Years Obs.	Nº. Of Firms
Merged COMPUSTAT, CRSP and FPIs' Lists (2000-2015) with available information	82,680	10,113	1,849	236	9,083	1243
Deleted Foreign Private Issuer voluntarily disclosing 10-K Form	0	0	-175	-15	-1,005	-134
Deleted obs. With no available information	-56,302	-5,572	-844	-100	-6,933	-761

FULL SAMPLE	26,378	4,541	830	121	1,145	348
SIZE MATCHED SAMPLE	1,842	452	805	119	1,037	333

Source: Produced by the author.

Figure 2 contains the 15 most frequent countries by foreign firms' group, considering the COMPUSTAT Current ISO Country Code - Incorporation (FIC) as the firm country. The majority of FDIs observations come from Bermuda, Ireland, United Kingdom, Switzerland and The Netherlands. FPIs observations are predominant from The Cayman Islands, Israel, Marshall Islands, Bermuda and United Kingdom. I also used the COMPUSTAT Current ISO Country Code – Headquarters (LOC) as the firm country and all results remained the same.

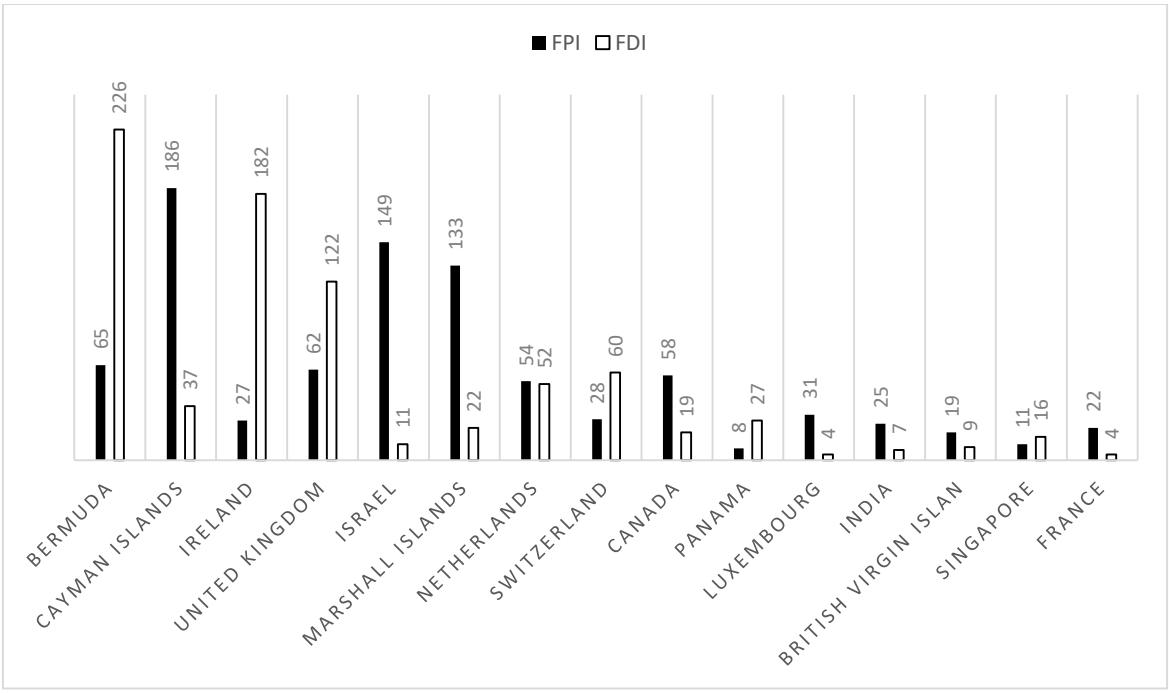

Figure 2: Number of foreign firms' observations by country and status.

3.4.2. Descriptive Statistics

Descriptive statistics of analyst forecasts' properties and control variables using the full sample, without matching, are shown in Table 9. Columns (4), (5) and (6)

contain the p-value of mean tests $H0: \mu_{US} - \mu_{FDI} = 0$, $H0: \mu_{US} - \mu_{FPI} = 0$ and $H0: \mu_{FDI} - \mu_{FPI} = 0$, respectively.

FDIs presented more analyst monitoring, more accurate and less disperse forecasts than U.S. firms, on average. FPIs showed a lower number of analysts following, less accurate and more disperse forecasts than U.S. firms, on average. When comparing FDIs and FPIs characteristics, the results indicated that FDIs are bigger, with more volatile earnings, report more loss, and have more growth prospects than FPIs, on average.

Table 10 contains variables correlations using the full sample, including U.S. firms, FDIs and FPIs, Pearson correlation above the diagonal and Spearman correlations bellow the diagonal.

$AnalystFollowing$ is positively correlated with $Accuracy$ and negatively correlated with $Dispersion$, suggesting that more analysts forecasting earnings are related to more accurate and more disperse forecasts, on average. There is no strong correlation between the control variables. $Accuracy$ is positively correlated with $Size$, ROA, $StockReturn_{t-1}$ and MTB, suggesting that bigger, more rentable and with higher growth prospects firms are related to more accurate forecasts. $Accuracy$ is negatively correlated with $EarningsVol$, $\Delta Earnings$ and $Leverage$, thus, firms with more volatile earnings and more leverage are related to earnings are more difficult to forecast.

TABLE 9: DESCRIPTIVE STATISTICS USING THE FULL SAMPLE

	(1) US		(2) FDI		(3) FPI		(4)	(5) Mean Test Pr(|T|>|t|)	(6)
Variables[a]	**MEAN**	**STD**	**MEAN**	**STD**	**MEAN**	**STD**	**US-FDI**	**US-FPI**	**FDI-FPI**
Accuracy	-0.0250	0.1300	-0.0179	0.1123	-0.0619	0.2209	0.0741	0.0000	0.0000
Dispersion	0.0236	0.1210	0.0164	0.0996	0.0629	0.2087	0.0403	0.0000	0.0000
AnalystFollowing	9.1914	7.1203	13.6699	8.5182	7.8227	6.1324	0.0000	0.0000	0.0000
Size	7.1146	1.7930	8.3588	1.5516	7.9600	2.0461	0.0000	0.0000	0.0000
ROA	0.0161	0.1722	0.0504	0.1090	0.0517	0.1202	0.0000	0.0000	0.7986
EarningsVol	0.0868	0.1343	0.0811	0.1335	0.0703	0.0914	0.2243	0.0000	0.0453
ΔEarnings	1.5017	3.7993	1.5619	3.8273	1.6227	3.8273	0.6532	0.2914	0.7273
Loss	0.2434	0.4292	0.1783	0.3830	0.2140	0.4103	0.0000	0.0178	0.0476
StockReturn$_{t-1}$	0.2023	0.7487	0.1695	0.6134	0.1887	0.7899	0.1329	0.5679	0.5439
Leverage	0.2145	0.2104	0.1990	0.1786	0.2089	0.2063	0.0146	0.3812	0.2533
MTB	3.2025	4.5466	2.9175	4.2831	2.5060	3.3649	0.0600	0.0000	0.0215
Nº Obs.	26,378		830		1,145				

[a] ***Accuracy*** is the negative of the absolute value of the analyst forecast error, deflated by stock price. ***Dispersion*** is the inter-analysts standard deviation of forecasts deflated by stock price. **AnalystFollowing** is the number of unique analysts issuing at least one forecast during the 90 days before the actual EPS was disclosed for the period. ***Size*** is the natural logarithm of total assets. ***ROA*** is return on assets, calculated as net income scaled by past total assets. ***EarningsVol*** is the standard deviation of ROA for the previous five years. ***ΔEarnings*** is the absolute value of earnings per share less past earnings per share. ***Loss*** is a dummy variable equals to 1 if the firm reported negative net income that year and zero otherwise. ***StockReturn$_{t-1}$*** is the annual return of the previous year. ***Leverage*** is total debt scaled by total assets. ***MTB*** is the market value of equity scaled by the book value of equity. All variables were winsorized at 1% level.

Source: Produced by the author.

TABLE 10: PEARSON AND SPEARMAN CORRELATIONS USING THE FULL SAMPLE

Variables[a]	*Accuracy*	*Dispersion*	*AnalystFollowing*	*Size*	*ROA*	*EarningsVol*	*ΔEarnings*	*StockReturn$_{t-1}$*	*Leverage*	*MTB*
Accuracy	1	-0.7864***	0.1142***	0.1251***	0.2396***	-0.1328***	-0.1352***	0.05535***	-0.0957***	0.0962***
Dispersion	-0.6263***	1	-0.0917***	-0.1176***	-0.2345***	0.1462***	0.1117***	-0.0665***	0.1103***	-0.0937***
AnalystFollowing	0.3352***	-0.1582***	1	0.4945***	0.1628***	-0.1167***	-0.0371**	-0.0278*	0.0637***	0.0637***
Size	0.1481***	-0.0510***	0.5203***	1	0.16331***	-0.3785***	-0.0767***	-0.1129***	0.1961***	-0.0874***
ROA	0.3707***	-0.3798***	0.1942***	0.0722***	1	-0.2312***	-0.1473***	0.1660***	-0.1329***	0.1572***
EarningsVol	-0.2439***	0.2702***	-0.0720***	-0.3885***	-0.0886***	1	0.1412***	0.1167***	-0.0467***	0.0658***

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[a] ***Accuracy*** is the negative of the absolute value of the analyst forecast error, deflated by stock price. ***Dispersion*** is the inter-analysts standard deviation of forecasts deflated by stock price. ***AnalystFollowing*** is the number of unique analysts issuing at least one forecast during the 90 days before the actual EPS was disclosed for the period. ***Size*** is the natural logarithm of total assets. ***ROA*** is return on assets, calculated as net income scaled by past total assets. ***EarningsVol*** is the standard deviation of ROA for the previous five years. ***ΔEarnings*** is the absolute value of earnings per share minus past earnings per share. ***StockReturn$_{t-1}$*** is the annual return of the previous year. ***Leverage*** is total debt scaled by total assets. ***MTB*** is the market value of equity scaled by the book value of equity.

* Statistical significance at the 10% level based on robust standard errors (two-tailed p-values in parenthesis).
** Statistical significance at the 5% level based on robust standard errors (two-tailed p-values in parenthesis).
*** Statistical significance at the 1% level based on robust standard errors (two-tailed p-values in parenthesis).
All variables were winsorized at 1% level.
Source: Produced by the author.

3.4.3. Regressions Results

The regression model (11) were estimated using a Tobit model with 0 as upper limit, the regression model (12) were estimated using a Tobit model with 0 as lower Limit, and the regression model (13) was estimated using Poisson model, both with robust standard errors, including year and industry fixed effects.

First, I estimated all the regression models using the full sample described at section 3.4.1., which the results are shown at Table 11. Further, I estimated all the regression models again using the size-matched sample also described in section 3.4.1., controlling for changes in forecast properties that are specific to a firm's fiscal year, industry and size, but unrelated to the different regulation; these results are shown at Table 12.

The column (1) of Table 11 and Table 12 contain the results of Equation (11) using the full and the size matched sample, respectively. At both tables $Accuracy$ is positively related to $Size$, ROA, $StockReturn_{t-1}$ and MTB; and negatively related to $EarningsVol, \Delta Earnings, Loss$ and $Leverage$. Suggesting that bigger firms, with higher performance and growth are related to more accurate earnings forecasts; and firms with more earnings volatility, bigger earnings change, loss and more risk are related to less accurate earnings forecasts.

Whether using the full or the size matched sample, the FPI coefficient is negative and statistically significant at 1% level, indicating that analysts' forecasts are less accurate for FPIs than U.S. firms; and the FDI is statistically insignificant, implying that there is no evidence of different forecast accuracy between FDIs and U.S. firms. Therefore, supporting hypothesis H1 and H2.

TABLE 11: REGRESSION RESULTS USING THE FULL SAMPLE

	(1)		(2)		(3)	
	Accuracy[b]		***Dispersion[b]***		***Analyst Following***	
Variables[a]	***Coef.***	***t-Stat.***	***Coef.***	***t-Stat.***	***Coef.***	***t-Stat.***
FDI	-0.0017	(-0.42)	-0.0029	(-0.88)	0.0724	(4.79)***
FPI	-0.0364	(-5.90)***	0.0350	(6.22)***	-0.4778	(-17.73)***
AnalystFollowing	0.0012	(7.62)***	-0.0001	(-0.38)		
Size	0.0026	(3.03)***	-0.0027	(-3.42)***	0.2930	(151.57)***
ROA	0.1579	(10.70)***	-0.1553	(-11.56)***	0.2355	(6.82)***
EarningsVol	-0.0749	(-5.67)***	0.0682	(5.66)***	0.4346	(13.11)***
ΔEarnings	-0.0011	(-3.25)***	0.0010	(3.18)***	-0.0021	(-2.17)**
Loss	-0.0209	(-5.79)***	0.0151	(4.66)***	0.0214	(1.94)*
$StockReturn_{t-1}$	0.0054	(3.08)***	-0.0065	(-4.43)***	-0.0149	(-2.82)***
Leverage	-0.0317	(-4.94)***	0.0305	(5.26)***	-0.3057	(-15.34)***
MTB	0.0012	(5.03)***	-0.0009	(-4.30)***	0.0180	(21.85)***
Constant	0.1324	(45.97)***	0.1187	(45.91)***	-0.2597	(-2.47)**
Year Dummies	Yes		Yes		Yes	
Industry Dummies	Yes		Yes		Yes	
Observations	28,353		28,353		28,353	

[a] ***FDI*** is a dummy variable equals to 1 if the firm is a foreign firm classified as FDI and 0 otherwise. ***FPI*** is a dummy variable equals to 1 if the firm is a foreign firm classified as FPI and 0 otherwise. ***AnalystFollowing*** is the number of unique analysts issuing at least one forecast during the 90 days before the actual EPS was disclosed for the period. ***Size*** is the natural logarithm of total assets. ***ROA*** is return on assets, calculated as net income scaled by past total assets. ***EarningsVol*** is the standard deviation of ROA for the previous five years. ***ΔEarnings*** is the absolute value of earnings per share less past earnings per share. ***Loss*** is a dummy variable equals to 1 if the firm reported negative net income that year and zero otherwise. $\boldsymbol{StockReturn_{t-1}}$ is the annual return of the previous year. ***Leverage*** is total debt scaled by total assets. ***MTB*** is the market value of equity scaled by the book value of equity.[b] ***Accuracy*** is the negative of the absolute value of the analyst forecast error, deflated by stock price. ***Dispersion*** is the inter-analysts standard deviation of forecasts deflated by stock price.
* Statistical significance at the 10% level based on robust standard errors (two-tailed p-values in parenthesis).
** Statistical significance at the 5% level based on robust standard errors (two-tailed p-values in parenthesis).
*** Statistical significance at the 1% level based on robust standard errors (two-tailed p-values in parenthesis). All variables were winsorized at 1% level.
Source: Produced by the author.

TABLE 12: REGRESSION RESULTS USING THE SIZE MATCHED SAMPLE

	(1)		(2)		(3)	
	Accuracy[b]		***Dispersion[b]***		***Analyst Following***	
Variables[a]	***Coef.***	***t-Stat.***	***Coef.***	***t-Stat.***	***Coef.***	***t-Stat.***
FDI	0.0034	(-0.69)	-0.0124	(-3.21)***	0.0628	(3.31)***
FPI	-0.0617	(-6.06)***	0.0601	(6.52)***	-0.5403	(-18.96)***
AnalystFollowing	0.0003	(-0.72)	0.0009	(2.35)**		
Size	0.0084	(3.43)***	-0.0071	(-3.11)***	0.2497	(42.42)***
ROA	0.2078	(3.59)***	-0.1808	(-3.27)***	0.8216	(6.05)***
EarningsVol	-0.1249	(-2.78)***	0.1452	(3.04)***	0.3173	(2.57)**

ΔEarnings	-0.0034	(-2.33)**	0.0020	(1.79)*	-0.0005	(-0.25)
Loss	-0.0280	(-2.22)**	0.0256	(2.20)**	0.1274	(4.12)***
StockReturn$_{t-1}$	0.0118	(1.79)*	-0.0155	(-2.52)**	0.0024	(-0.12)
Leverage	-0.0798	(-3.52)***	0.0818	(3.95)***	-0.3479	(-5.77)***
MTB	0.0022	(2.54)**	-0.0017	(-2.73)***	0.0139	(5.36)***
Constant	0.0075	(-0.30)	0.0058	(-0.21)		
Year Dummies	Yes		Yes		Yes	
Industry Dummies	Yes		Yes		Yes	
Observations	3,684		3,684		3,684	

[a] ***FDI*** is a dummy variable equals to 1 if the firm is a foreign firm classified as FDI and 0 otherwise. ***FPI*** is a dummy variable equals to 1 if the firm is a foreign firm classified as FPI and 0 otherwise. ***AnalystFollowing*** is the number of unique analysts issuing at least one forecast during the 90 days before the actual EPS was disclosed for the period. ***Size*** is the natural logarithm of total assets. ***ROA*** is return on assets, calculated as net income scaled by past total assets. ***EarningsVol*** is the standard deviation of ROA for the previous five years. ***ΔEarnings*** is the absolute value of earnings per share less past earnings per share. ***Loss*** is a dummy variable equals to 1 if the firm reported negative net income that year and zero otherwise. ***StockReturn$_{t-1}$*** is the annual return of the previous year. ***Leverage*** is total debt scaled by total assets. ***MTB*** is the market value of equity scaled by the book value of equity.[b] ***Accuracy*** is the negative of the absolute value of the analyst forecast error, deflated by stock price. ***Dispersion*** is the inter-analysts standard deviation of forecasts deflated by stock price.
* Statistical significance at the 10% level based on robust standard errors (two-tailed p-values in parenthesis).
** Statistical significance at the 5% level based on robust standard errors (two-tailed p-values in parenthesis).
*** Statistical significance at the 1% level based on robust standard errors (two-tailed p-values in parenthesis). All variables were winsorized at 1% level.
Source: Produced by the author.

Equation (12) results are at Column (2) of Table 11 and Table 12, using the full and the size matched sample, respectively. When using the size matched sample, $Dispersion$ appears to be positively related to $Analyst\_Following$, $Earnings\_Vol$, $\Delta Earnings$, $Loss$ and $Leverage$; and is negatively related to $Size$, ROA, $StockRetutn_{t-1}$ and MTB. Using the full sample, the relation between $Dispersion$ and $Analyst\_Following$ disappears and the others remain the same. Therefore, the results suggest that bigger firms, with higher performance and growth are related to less disperse earnings forecasts; and firms with more analysts following, more earnings volatility, bigger earnings change, loss and more risk are related to more disperse earnings forecasts.

Using both samples the FPI coefficient is positive and statistically significant at 1% level, indicating that analysts' forecasts are more disperse for FPIs than similar U.S. firms, supporting hypothesis H1. FDI coefficient is negative and statistically significant at 1% level when using the size matched sample, however, the relation is not statistically significant when using the full sample. This suggests that analysts' forecasts of FDIs are less disperse or have the same level of dispersion than analysts' forecasts of similar U.S. firms, supporting H2.

Column (3) of Table 11 and Table 12 show the results of the regression model (13). Using both samples, $Analyst\_Following$ is positively related to $Size$, ROA, $Earnings_{Vol}$, $Loss$, and MTB. Therefore, larger firms, with higher performance, more volatile earnings, loss and more growth are more likely to have more analysts forecasting their earnings than smaller firms, with lower performance, less volatile earnings, profits and less growth. $Analyst\_Following$ is negatively related to $Leverage$, suggesting that risky firms have less likely to have more analysts forecasting their earnings. At both tables the coefficients of FPI and FDI are negative and positive, respectively, both statistically significant at 1% level. Therefore, FPIs are less likely to be subject to a higher level of analyst monitoring than similar U.S. firms, supporting hypothesis H1, and FDIs are more likely to be subject to a higher level of analyst monitoring than similar U.S. firms, supporting hypothesis H2.

3.5 CONCLUSION

In this study I aimed to analyze whether there is difference in analysts forecast properties, such as accuracy, dispersion and analyst following, between U.S. and foreign firms listed on U.S. exchanges as related to different level of disclosure regulation. In particular, whether foreign firms following the full disclosure regulation

have similar, or even better, forecast properties than U.S. firms; and whether foreign firms with disclosure exemptions have worse forecast properties than U.S. firms.

Using a sample between 2000 and 2015 of foreign and U.S. firms listed in the U.S., and a size-matching sample, this paper provides evidence that there are statistically significant differences in accuracy, dispersion and number analysts providing forecasts for U.S. firms and foreign firms. Moreover, the different regulation between foreign firms leads to opposite conclusions when comparing them to U.S. firms.

Consistent with prior research (Das & Saudagaran, 1998; Das & Saudagaran, 2002), foreign firms classified as FPIs have less analysts following, less accurate and more disperse forecasts than U.S. firms. However, foreign firms complying with the full disclosure regulation are similar to U.S. firms on analysts forecast accuracy, presented significantly less disperse forecasts and are more likely to have more analysts following.

Concluding that, the lower level of a third party monitoring for foreign firms compared to U.S. firms only exists when foreign firms provide less frequent and less detailed relevant disclosures. Foreign firms complying with the full disclosure regulation not only are have similar third party monitoring level and quality than U.S. as presented more third party monitoring than U.S. firms.

4 DISCLOSURE REGULATION AND INFORMATION ASYMMETRY

4.1 INTRODUCTION

The U.S. Securities and Exchange Commission (SEC) is an independent agency of the United States federal government created in 1934. The main responsibility of the SEC is to enforce the federal securities laws, propose new securities rules and to regulate the securities industries, the U.S. stock and option exchanges to reduce information asymmetry among investors.

Foreign firms with shares listed on U.S. exchanges must submit themselves to SEC regulation and enforcement. However, the SEC regulates foreign firms differently. As described in section 2.1., foreign firms with shares listed in the U.S. are classified by the SEC in two different groups, FDIs and FPIs, where FDIs must comply with full SEC regulation (as U.S. firms) and FPIs have significant regulation exemptions related to the timeliness, quality and frequency of their financial statements and disclosure of private information.

Moreover, Naughton et al. (2019) results indicate that the SEC just not gives FPIs disclosure exemptions; but, also, it is not monitoring FPIs with cross-listed shares as FPIs shares listed only in the U.S., suggesting that the SEC might be sharing its monitoring responsibility with FPIs' home countries.

The purpose of this study is to empirically investigate whether the different disclosure requirements and monitoring levels for foreign firms are related to information asymmetry level among investors. I am going to compare the magnitude of information asymmetry for all companies that trade in the U.S. market subject to different regulation: U.S. firms, FDIs and FPIs.

Fu, Kraft and Zhang (2012) results indicate that a higher frequency of mandatory disclosures is associated with less information asymmetry among investors; and Buskirk (2012) showed that lower levels of information asymmetry levels among investors are associated with more detailed disclosures than more voluntarily disclosures.

Therefore, since FPIs make less frequent and less detailed mandatory disclosures than U.S. firms, it is expected that they are related to higher information asymmetry levels in comparison with U.S. firms. On the other hand, FDIs must comply with the same disclosure requirements as U.S. firms; thus, it is expected that they present similar information asymmetry levels among investors as U.S. firms.

To measure information asymmetry among investors I use three proxies: bid-ask spread, standardized unexplained volume and illiquidity, with a sample 143 FDIs and 527 FPIs listed on NYSE, NASDAQ or AMEX, and of 1,478 size matched U.S. firms, I estimated three regressions, using an OLS model with robust standard errors and including year and industry fixed effects, each of them with one of the information asymmetry proxies as a dependent variable.

Controlling for other firm characteristics, FPIs presented a 27% higher bid-ask, 30.46% higher SUV and 74.37% higher illiquidity than similar U.S. firms, all of the information asymmetry differences are statistically significant at 1% level. On the other side, FDIs did not present statistically different bid-ask spread or illiquidity than similar U.S. firms, but presented a 2.52% lower SUV than similar U.S. firms.

Therefore, foreign firms complying with full disclosure have no difference or lower information asymmetry levels than similar U.S. firms, while foreign firms providing less frequent and less detailed mandatory disclosure presented consistently higher information asymmetry levels than similar U.S. firms.

This study contributes to the literature related to mandatory disclosure frequency by providing more evidence that more frequent mandatory disclosures are related with lower information asymmetry levels among investors. Moreover, this study also contributes to the stock market regulators by analyzing the information asymmetry levels within differently regulated firms and providing evidence that firms with disclosure exemptions are related to higher information asymmetry levels among investors. This study also contributes to the "bonding" hypothesis literature by investigating whether foreign firms are truly bonding themselves to a better regulatory environment, even when SEC gives them disclosure exemptions, and the results suggest that foreign firms with disclosure exemptions are not bonding themselves to the same regulation that U.S. firms.

4.2 PRIOR LITERATURE AND HYPOTHESES DEVELOPMENT

The relation between disclosure frequency and quality with information asymmetry among investors is an important topic for the regulators, managers, academics and investors.

Information asymmetry occurs when one or more investors have private information about the firm's value that other investors do not have. When informed investors trade based on their private information it creates an adverse selection problem in the market. Brown and Helleigeist (2007) characterized information asymmetry as "the probability that a particular buy or sell order comes from an investor with private information."

The firm's disclosures quality plays an important role in reducing information asymmetry among investors. Results from prior literature indicate that disclosure quality is negatively related to information asymmetry among investors (Brown, &

Hellegeist, 2007; Healy, Hutton, & Pallepe, 1999; Heffin, Shaw, & Welld, 2005; Welker, 1995).

According to Merton (1987) and Fishman and Hagerty (1989), investors are more likely to trade on well-known or favorable firms. Thus, if higher quality disclosures increase a firm visibility, it will induce uninformed investors to trade more, reducing the information asymmetry. Diamond (1985) and Verrecchia (1982) results imply that when a firm makes information publicly it reduces the incentives for investors to acquire privative information. Therefore, reducing the asymmetry of information among investors.

Information asymmetry among investors also appears to be related with disclosure frequency. Diamond and Verrecchia (1991) disclosure model predict that firms' disclosures reduce the incentives for private information acquisition, as a result incentives uninformed investors to trade in shares of the firm, causing an increase in the volume of transactions and liquidity. Results from empirical literature also indicate that more frequent disclosures are related to lower levels of information asymmetry among investors (Botosan, 1997; Eaton et al., 2007; Fu, Kraft, & Zhang, 2012; Healy et. al, 1999; Leuz, & Verrecchia, 2000; Sengupta, 1998).

Therefore, if FPIs less detailed and less frequent disclosures are resulting in lower quality information and disclosure quality and frequency are negatively related to information asymmetry, it is expected that they will present higher levels of information asymmetry compared to U.S. firms, given their less frequent and less detailed mandatory disclosures. Leading to my hypothesis 1:

H1: FPIs have a greater information asymmetry level among investors than similar FDIs and U.S. firms.

Otherwise, as FDIs are disclosing as detailing information than U.S. firms at the same frequency, it would be expected that they will present similar levels of information asymmetry among investors.

However, Lundholm et al. (2014) found that foreign firms are providing higher quality, voluntary and mandatory, disclosures than U.S. firms. They argue that foreign firms are writing more clear text with more numbers than U.S. firms to try to mitigate the home country bias that makes U.S. investors reluctant to invest in foreign firms.

Therefore, if FDIs are proving disclosures with the same frequency than U.S. firms but with higher quality to reduce home country bias, and higher quality disclosures reduce information asymmetry, it would be expected that they will present lower levels of information asymmetry than U.S. firms, resulting in my hypothesis H2:

H2: FDIs have similar or lower information asymmetry level among investors than similar U.S. firms.

4.3. RESEARCH DESIGN

4.3.1. Information Asymmetry Measures

To measure Information Asymmetry level, I use three proxies from prior literature: bid-ask spread, standardized unexplained volume and illiquidity. The first measure is a common proxy used in prior literature (Mohd, 2005; Silber, 2005; Fu et al., 2012), a larger spread necessary to cover higher expectations from market-maker losses from trading with informed investors means there is a higher level of information asymmetry among investors. Following Mohd (2005), Silber (2005) and Fu et al. (2012), I calculate the daily bid-ask spread as $(Bid_t - Ask_t)/[(Bid_t + Ask_t)/2]$, where Bid_t represents the maximum price that an investor is willing to pay at the day t, and

Ask_t represents the maximum price that an investor is willing to sell at the day t. Fu et al. (2012) argue that the daily spread measure could be capturing the difference between the daily low and daily high prices, because of that they regress the daily spread measure on the daily absolute return for each firm year and use the intercept term the annual information asymmetry measure. Therefore, I follow their methodology to calculate the annual spread measure.

The second measure is the absolute value of the standardized unexplained volume (SUV) constructed by Garfinkel (2009). The daily SUV is calculated as a standardized prediction error from a regression of trading volume on the absolute value of returns.

$$SUV_{it} = \frac{UV_{it}}{S_{it}},$$

where

$$UV_{it} = Turnover_{it} - E[Turnover_{it}],$$

$$E[Turnover_{it}] = \hat{\alpha}_0 + \hat{\alpha}_1 |R_{it}|^{+} + \hat{\alpha}_2 |R_{it}|^{-}$$

$$Turnover_{it} = \frac{Volume_{it}}{\#Shares.1000}$$

R_{it} is the daily stock return, $|R_{it}|^{+}$ is the daily stock return of firm i at the fiscal year t if the return is positive and zero otherwise, $|R_{it}|^{-}$ is the daily stock return of firm i at the fiscal year t if the return is negative and zero otherwise, S_{it} is the stock return volatility. The annual SUV is measured as the median of the daily absolute value of the SUV over the fiscal year.

Therefore, SUV is a measure for an unexpected turnover, which captures investors opinion divergence. A higher SUV means more divergence; thus, more information asymmetry among investors.

Amihud (2002) illiquidity measure is the daily absolute return divided by the dollar trading volume. Following Daske, Hail, Leuz and Verdi (2008) and Fu et al. (2012), I measure the annual illiquidity as the median of the daily illiquidity measure over the fiscal year. Diamond and Verrecchia (1991) argue that the reduction of information asymmetry increases the liquidity of the market for a firm's securities. Thus, higher levels of illiquidity are associated with higher levels of information asymmetry among investors.

4.3.2. Econometric Model

To analyze whether the SEC's different regulations for foreign firms is related to the information asymmetry among investors, I estimated the following regression using an OLS model with robust standard errors and including year and industry fixed effects:

$$IA_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 FPI_{it} + \sum_{k=3}^{N} \beta_k Control_{it}^{k} + \varepsilon_{it} \quad (14)$$

IA_{it} represents one of the three information asymmetry measures (described at section 4.3.1) for the firm i at the year t, FDI_{it} is a dummy variable equals to 1 if the foreign firm i was classified as FDI at the year t and 0 otherwise, FPI_{it} is a dummy variable equals to 1 if the foreign firm i was classified as FPI at the year t and 0 otherwise, $Control_{it}^{k}$ represents each control variable that is going to be included in the regression model.

I intend to control for firm characteristics that were found to be associated with information asymmetry. Specifically, to control for the effects of firm size, share price, trading volume, stock return volatility, analyst following and, also, include share turnover when it is not being used as a dependent variable (Stoll, 1978; Chiang & Venkatesh, 1988; Glosten & Harris, 1988; Leuz & Verrecchia, 2000; Stoll, 2000; Daske et al., 2008, Fu et al., 2013; Bhattacharya, Desai, & Venkataraman, 2013).

Firm size is measured as the log of the average market of equity at the beginning and end of the prior year, share price is the log of the median daily stock price during the year, trading volume is the log of the median daily dollar trading volume during the year, stock return volatility is the standard deviation of the daily returns during the year, analyst following is the number of unique analysts following is the number of unique analysts issuing at least one forecast for firm i during the 90 days before the actual EPS was disclosed for the year. Firm size, trading volume and analyst following are all associated with the quality and quantity of information production; share price is included to control for higher risk associated with low priced securities; stock return volatility controls for the possibility that informed investors are more active in risky stocks.

4.4. RESULTS

4.4.1 Sample

I started the sample of identified FPIs from the FPI's lists made by the SEC between 2000 and 2015 composed of 15,559 firms-years observations. 51.14% of the 1971 observations left are classified as OTC Market, 40.48% are classified as Debt (NYSE-Debt or OTC-Debt), 2.83% are classified as preferred (AMEX-

Preferred, NYSE-Preferred or OTC-Preferred), 4.01% is classified as NYSE Market and the left 1.54% as distributed within AMEX, Capital Market, Global Market, and NMS.

Table 13 shows the sample construction, it started by merging COMPUSTAT, CRSP and FPIs' lists. To avoid endogeneity, generate by self-selection I deleted FPI voluntarily disclosing a 10-K form, losing 42 FDIs and 167 FPIs. 5,976 U.S. firms, 111 FDIs and 491 FPIs were deleted because did not have available information about the information asymmetry proxies and control variables.

TABLE 13: SAMPLE CONSTRUCTION

	U.S. Firms		**FDIs**		**FPIs**	
	Nº. Of Firms-Years Obs.	**Nº. Of Firms**	**Nº. Of Firms-Years Obs.**	**Nº. Of Firms**	**Nº. Of Firms-Years Obs.**	**Nº. Of Firms**
Merged COMPUSTAT, CRSP, IBES and FPIs' Lists (2000-2015) with available information	100,185	13,283	2,073	321	9,300	1,379
Deleted FPIs voluntarily disclosing 10-K Form	0	0	-182	-42	-1,107	-167
Deleted obs. with no available information for information asymmetry and control variables	-59,103	-5,976	-844	-111	-5,737	-491
Deleted firms with shares that are not traded on NYSE, NASDAQ or AMEX	-3,415	-1,169	-69	-24	-402	-174
Matching Based on Total Assets by Fiscal Year and Industry	-34,852	-4,660	-41	-1	-176	-20
FINAL SAMPLE	**2,815**	**1,478**	**937**	**143**	**1,878**	**527**

Source: Produced by the author.

To avoid governance and monitoring exchanges effects on the results, I deleted firms with shares listed on other stock exchanges than the New York Stock Exchange (NYSE), NASDAQ and American Stock Exchange (AMEX), losing 1169 U.S. firms, 24

FDIs and 174 FPIs. Given the significant difference in the U.S. sample size and foreign firms sample size, to assure that I was comparing similar firms I performed a size-matching, where for each foreign firm a match a U.S. firm in the same industry sector and fiscal year closest in size. The final sample contains 1,478 U.S. firms, 143 FDIs and 527 FPIs.

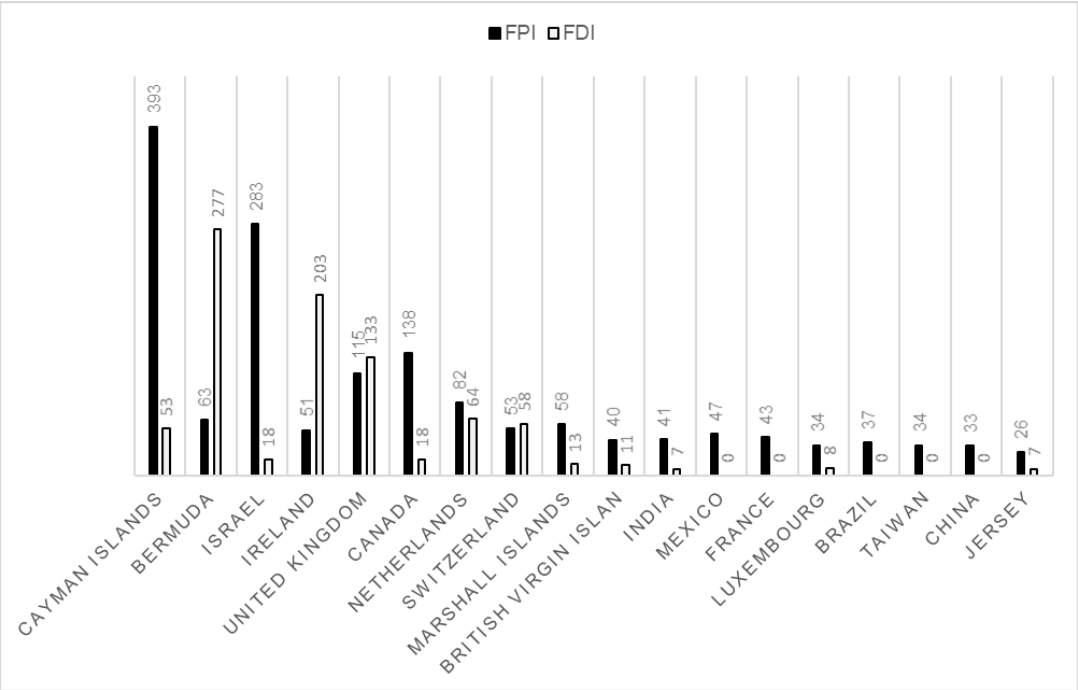

Figure 3: Number of foreign firms' observations by country and status.

FPIs observations are predominantly in Cayman Islands, Israel, Canada, United Kingdom and Netherlands; and FDI observations are more frequent in Bermuda, Ireland, United Kingdom, Netherlands and Switzerland. Figure 3 contains foreign firms observations distributed by status and the most frequent countries.

4.4.2. Descriptive Statistics

Descriptive statistics of information asymmetry proxies and control variables are presented at Table 14. Columns (4), (5) and (6) contain the p-value of the mean tests: $H_0: \mu_{US} - \mu_{FDI} = 0$, $H_0: \mu_{US} - \mu_{FPI} = 0$ and $H_0: \mu_{FDI} - \mu_{FPI} = 0$, respectively.

Considering a statistical significance of 5%, U.S. firms and FDIs do not have statistically different bid-ask Spread and SUV means; FDIs show statistically lower illiquidity levels than U.S. firms. Indicating that FDIs have similar or lower information asymmetry levels than U.S. firms.

FPIs have a statistically higher bid-ask spread, SUV and illiquidity levels than similar U.S. firms. Providing preliminary evidence that FPIs have higher asymmetry levels than similar U.S. firms.

Moreover, FDIs are statistically bigger, with higher price and more analyst following than similar U.S. firms; and FPIs are statistically smaller, with lower price and with less analyst following than similar U.S. firms.

4.4.3. Regression Results

Table 15 presents the results of the estimated regressions of the equation (14) using the three information asymmetry proxies: bid-ask spread, SUV and illiquidity, as dependent variables at columns (1), (2) and (3) respectively.

All the three regression models presented a positive statistically significant coefficient for the FPI dummy, at 1%. Corroborating with H1, that FPIs have higher information asymmetry levels than similar U.S. firms. The FPI coefficient for the bid-ask spread regression is 0.00081, which represents an increase of 27% on U.S. firms bid-ask mean; for the SUV regression the FPI coefficient represents an increase of 30.46% on U.S. firms SUV average; and for the illiquidity regression the FPI coefficient represent an increase of 74.87% on U.S. firms illiquidity average.

TABLE 14: DESCRIPTIVE STATISTICS

	(1) US		(2) FDI		(3) FPI		(4)	(5) Mean Test Pr(|T|>|t|)	(6)
Variables[a]	**MEAN**	**STD**	**MEAN**	**STD**	**MEAN**	**STD**	**US-FDI**	**US-FPI**	**FDI-FPI**
Bid-Ask Spread	0.0030	0.0053	0.0027	0.0050	0.0051	0.0067	0.0992	0.0000	0.0000
SUV	0.5915	0.0972	0.5860	0.0958	0.5809	0.1008	0.1291	0.0003	0.2038
Illiquidity	1.17E-07	3.45E-07	8.43E-08	2.77E-07	2.97E-07	6.84E-07	0.0085	0.0000	0.0000
Size	14.5845	1.9106	14.8473	1.5138	13.2975	1.8000	0.0001	0.0000	0.0000
Price	3.2092	0.8713	3.3659	0.7201	2.8231	0.9195	0.0000	0.0000	0.0000
Volatility	0.0037	0.0033	0.0037	0.0028	0.0061	0.0070	0.7323	0.0000	0.0000
Analyst Following	2.2142	0.8050	2.3832	0.7240	1.6878	0.7294	0.0000	0.0000	0.0000
N	2,815		937		1,878				

[a] **Bid-Ask Spread** is the median of the daily Bid-Ask Spread during the fiscal year. ***SUV*** is the median of the daily absolute value of the standardized unexplained volume during the fiscal year. ***Illiquidity*** is the median of the daily illiquidity during the fiscal year. ***Size*** is the median of the daily firm size, measured as natural logarithm of market value + 1, during the fiscal year. ***Price*** is the median of the daily natural logarithm of share price + 1, during the fiscal year. ***Volatility*** is the median of the daily natural logarithm of stock return standard deviation calculated based on 60 days. ***Analyst Following*** is natural logarithm of the number of unique analysts issuing at least one forecast during the 90 days before the actual EPS was disclosed for the period + 1. **Turnover** is the median of the daily turnover during the fiscal year, where daily turnover is calculated as the ratio of the daily volume ant the number of shares outstanding times 1000.
Source: Produced by the author.

TABLE 15: REGRESSIONS RESULTS

	(1) Bid-Ask Spread[a]			(2) SUV[b]			(3) Illiquidity[c]		
Variables[d]	**Exp. Sign**	**Coef.**	**t-Stat.**	**Exp. Sign**	**Coef.**	**t-Stat.**	**Exp. Sign**	**Coef.**	**t-Stat.**
FDI	**no sig.**	-0.00011	(-0.86)	**no sig.**	-0.0149	(-4.25)***	**no sig.**	-1.03E-08	(-1.01)
FPI	**+**	0.00081	(6.13)***	**+**	0.1802	(6.35)***	**+**	8.76E-08	(6.26)***
Size		-0.00094	(-16.59)***		0.0192	(15.29)***		-1.82E-07	(-18.77)***
Price		-0.00155	(-18.45)***		0.0026	(1.34)		9.07E-08	(8.68)***
Volatility		-0.07316	(-3.13)***		0.2259	(0.75)		-8.98E-06	(-3.01)***
Analyst Following		0.00013	(1.36)		0.0033	(1.35)		1.46E-08	(12.92)***
Turnover		-0.06700	(-4.72)***		-			-9.86E-06	(-5.33)***
Adj. R^2		60.07%			22.62%			33.69%	
N		5,630			5,630			5,630	
Year Fixed Effects		YES			YES			YES	
Industry Fixed Effects		YES			YES			YES	

[a] ***Bid-Ask Spread*** is the median of the daily Bid-Ask Spread during the fiscal year. [b] ***SUV*** is the median of the daily absolute value of the standardized unexplained volume during the fiscal year. [c] ***Illiquidity*** is the median of the daily illiquidity during the fiscal year. [d] ***FDI*** is a dummy variable equals to 1 if the firm is a foreign firm classified as FDI and 0 otherwise. ***FPI*** is a dummy variable equals to 1 if the firm is a foreign firm classified as FPI and 0 otherwise. ***Size*** is the median of the daily firm size, measured as natural logarithm of market value +1, during the fiscal year. ***Price*** is the median of the daily natural logarithm of share price + 1, during the fiscal year. ***Volatility*** is the median of the daily natural logarithm of stock return standard deviation calculated based on 60 days. ***Analyst Following*** is natural logarithm of the number of unique analysts issuing at least one forecast during the 90 days before the actual EPS was disclosed for the period + 1. **Turnover** is the median of the daily turnover during the fiscal year, where daily turnover is calculated as the ratio of the daily volume ant the number of shares outstanding times 1000.

* Statistical significance at the 10% level based on robust standard errors (two-tailed p-values in parenthesis).
** Statistical significance at the 5% level based on robust standard errors (two-tailed p-values in parenthesis).
*** Statistical significance at the 1% level based on robust standard errors (two-tailed p-values in parenthesis).
All variables were winsorized at 1% level.
Source: Produced by the author.

The FDI coefficient is statistically insignificant when using bid-ask spread and illiquidity as information asymmetry proxies, and negative statistically significant at 1% when using SUV as a proxy for information asymmetry. The FDI coefficient for the SUV regression is -0.0149 which represent a decrease of 2.52% on U.S. firms SUV average.

Therefore, the results confirm H2 that foreign firms complying with full disclosure have no difference on, or have lower levels of information asymmetry than similar U.S. firms; and H1 that foreign firms providing less frequent and less detailed mandatory disclosures have consistent higher information asymmetry levels among investors than similar U.S. firms.

4.5 CONCLUSION

This study analyzed whether foreign firms with different disclosure regulation presented different levels of information asymmetry compared as similar U.S. firms. In particular, whether foreign firms disclosing less frequent and less detailed mandatory disclosures presented higher levels of information asymmetry levels among investors compared to similar U.S. firms, and the information asymmetry difference does not prevail when foreign firms comply with full disclosure regulation.

Using a sample of 143 FDIs and 527 FPIs listed on NYSE, NASDAQ or AMEX, and of 1,478 size matched U.S. firms, and three proxies for information asymmetry, this paper provides evidence that foreign firms with disclosure exemptions have higher information asymmetry levels than similar U.S. firms; while foreign firms complying with full disclosure regulation presented no significant difference using two of the information asymmetry proxies and lower information asymmetry levels when using a third proxy compared to similar U.S. firms.

Consistent with prior research (Buskirk, 2012; Fu et al. 2012), that more frequent and more detailed disclosures are related to lower information asymmetry levels.

5. CONCLUSION

This study aimed to investigate the consequences of different disclosure regulation on the firm's earnings quality, intermediary monitors, and the information asymmetry among investor. It analyzes whether the SEC's lower level of regulation and enforcement for foreign firms classified as FPIs are associated with less informative earnings, lower and less accurate intermediary monitoring, and more information asymmetry among investors.

Using abnormal earnings, earnings smoothness and managing towards earnings targets as proxies for earnings quality, the results show that foreign firms complying with full disclosure regulation have as informative earnings than U.S. firms, while foreign firms providing less frequent and less detailed disclosures presented significant less informative earnings than U.S. firms.

This paper provides evidence that foreign firms enjoying disclosure exemptions have less intermediary monitoring, less accurate and more disperse earnings forecasts than U.S. firms. However, foreign firms complying with full disclosure regulation showed no difference in accuracy, less disperse forecasts and more intermediary monitoring than U.S. firms.

Moreover, foreign firms disclosing as frequent and detailed mandatory reports than U.S. firms showed no difference in information asymmetry levels than similar U.S. firms when using bid-ask spread and illiquidity as proxies for information asymmetry; and they showed even lower information asymmetry levels among investors than similar U.S. firms when using the standardized unexplained volume (SUV) as proxy for information asymmetry among investors.

Foreign firms providing less frequent and less detailed mandatory disclosures following a different accounting standard, present consistently and significant higher information asymmetry level among investors than similar U.S. firms.

In general, the results indicate that SEC disclosure exemptions are related to less informative earnings, lower quality of third party intermediary and more information asymmetry among investors compared to U.S. firms, and these differences are not related to the fact they are foreign firms, because foreign firms complying with the full disclosure regulation have shown similar, or even better, earnings quality, intermediary monitoring and information asymmetry levels than U.S. firms.

It is important for the SEC to protect investors, generating more and better financial information, and reducing information asymmetry among investors. Therefore, these findings contribute to the regulation of the stock market, providing evidence that if all foreign firms were regulated as U.S. firms, it would generate a better information environment with more informative earnings and earnings forecasts, resulting in lower information asymmetry levels among investors. This study also contributes to the stock market and the by creating a sample of foreign firms listed in the U.S. market, classifying them in their two classification groups: FDIs and FPIs.

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