

**CUE91 - DOES REPORTING REGULATION AFFECT ANALYST
FORECAST PROPERTIES? THE CASE OF FOREIGN FIRMS****AUTORIA**

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Resumo

In this study we aimed to investigate whether analyst forecasts' properties vary accordingly to the reporting level stipulated by the SEC to U.S. and foreign firms listed on U.S. exchanges. Using a sample of foreign firms listed in the U.S. market between 2000 and 2015 and size-matched U.S. firms by year and industry, the results indicate that foreign firms complying with SEC full extent regulation have less disperse forecasts and more intense analyst monitoring than similar 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 similar U.S. firms and show evidence of less analyst monitoring. 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 diminish, or even reversed, if the SEC regulated all firms at the same extent.

DOES REPORTING REGULATION AFFECT ANALYST FORECAST PROPERTIES? THE CASE OF FOREIGN FIRMS

ABSTRACT

In this study we aimed to investigate whether analyst forecasts' properties vary accordingly to the reporting level stipulated by the SEC to U.S. and foreign firms listed on U.S. exchanges. Using a sample of foreign firms listed in the U.S. market between 2000 and 2015 and size-matched U.S. firms by year and industry, the results indicate that foreign firms complying with SEC full extent regulation have less disperse forecasts and more intense analyst monitoring than similar 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 similar U.S. firms and show evidence of less analyst monitoring. 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 diminish, or even reversed, if the SEC regulated all firms at the same extent.

Key-words: Analyst Earnings Forecast; Reporting Regulation; Foreign Firms; Foreign Private Issuer.

1 INTRODUCTION

This paper examines whether there are systematic differences in analysts' earnings forecasts within the two groups of foreign firms, subject to different levels of reporting and disclosure regulation, compared to similar U.S. firms. We analyzed the properties of earnings forecast such as forecast accuracy, dispersion and number of analysts following.

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). However, the United States Securities and Exchange Commission (SEC) classifies foreign firms listed in the U.S. market in two groups: Foreign Private Issuers (FPIs) and Foreign Domestic Issuers (FDIs)¹, while FDIs must comply full extent as U.S. firms, FPIs experience exemptions related to the timeliness, quality and frequency of financial statements, accounting standards disclosure of private information, and corporate governance practices.

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. Moreover, Naughton, Rogo, Sunder, and Zhang (2019) show that SEC is not monitoring foreign firms on full extent, their results indicate that cross-listed firms are been less monitored than foreign firms listed only on US exchanges. 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 non-cross-listed firms, leading to higher valuations through the effect on the firms' information environment (Lang, Lins, & Miller, 2003). On the other hand, Das and Saugagaran (1998) and Das and Saudagaran (2002) found that analysts' forecasts of cross-listed firms are less accurate and there exists less consensus between analysts' forecasts than U.S. firms

Hope (2003) and Lang and Russell (1996) results show that disclosure policies and accounting standards affect analysts' forecast properties. Lang and Russell (1996) provide

¹ Accessing the U.S. Capital Markets — A Brief Overview for Foreign Private Issuers: <https://www.sec.gov/divisions/corpfin/internatl/foreign-private-issuers-overview.shtml>

evidence that firms with more informative disclosure policies have more analysts following them, they also present more accurate analyst earnings forecasts and 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 would be relevant for both investors and researchers to investigate whether the different reporting regulation for foreign firms affect 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 FDIs and FPIs separately, given that FDIs have to report at full extent as U.S. firms and FPIs have not.

Our sample includes foreign firms listed in the U.S. market from 2000 to 2015 and size-matched U.S. firms by fiscal year and industry. The final sample contains 452 U.S. firms (1842 firm-year obs.), 119 FDIs (805 firm-year obs.) and 333 FPIs (1037 firm-year obs.). Most of FDIs observations are concentrated at Bermuda (27.95%), Ireland (22.48%), United Kingdom (15.16%), Switzerland (7.45%) and The Netherlands (6.46%), FPIs observations are concentrated at the Cayman Islands (17.94%), Israel (14.37%), United Kingdom (5.98%), Canada (5.5%) and Marshall Islands (5.3%).

Using a Tobit model with industry and year fixed effects, the results indicate that analysts' earnings forecasts of FPIs are less accurate than earnings forecasts of similar U.S. firms and FDIs. We did not find evidence of different accuracy for FDIs compared to similar U.S. firms. Moreover, using another Tobit model, we found evidence that FPIs earnings forecasts are more disperse than earnings forecasts of similar U.S. firms and FDIs. We also found that FPIs earnings forecasts are less disperse than similar U.S. firms earnings forecasts. Using a Poisson model, including industry and year fixed effects, the results indicate that FPIs are more likely to be subject to a less intense monitoring than similar U.S. firms and FDIs, while FDIs are more likely to be subject to a more intense monitoring than similar U.S. firms.

Therefore, consistent with Das and Saugagaran (1998) and Das and Saugagaran (2002), foreign firms classified as FPIs showed evidence of less analyst monitoring, less accurate earnings forecasts and less consensus within analysts than similar U.S. firms. However, foreign firms classified as FDIs, which are subject to the full extent of reporting and disclosure regulation, showed evidence of more monitoring and more earnings forecasts consensus than U.S. firms and no evidence of different accuracy of earnings forecast.

This study contributes to the prior cross-listed literature, extending Das and Saugagaran (1998) and Das and Saugagaran (2002) work by analyzing whether the result found for them—that foreign firms listed in the U.S. have less accurate and more disperse analyst earnings forecasts than similar U.S. firms—is sustained when comparing FDIs to U.S. and FPIs to U.S. firms, or whether this difference on analysts forecast properties only exists when foreign firms do not follow the same disclosure regulation. The results found in this study also contribute to the stock market, in forming unbiased expectations of earnings.

2 PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

2.1 Foreign Firms Classification and Disclosure Regulation

Foreign firms with shares listed on U.S. exchanges are submitted to the SEC regulation. The SEC classifies them (annually) in two groups: Foreign Private Issuer (FPI) and Foreign Domestic Issuer (FDI), allowing exemptions from U.S security reporting and regulatory requirements for firms that qualify as FPIs.

The SEC classifies a foreign firm as FDI if the firm has more than 50% of the outstanding voting securities are held directly or indirectly of record by U.S. residents; **and** any of the following applies:

- The majority of the executive officers or directors are U.S. citizens or residents;
- more than 50% of the assets are located in the U.S.

or

- the business is administered principally in the United States.

Otherwise, the firm will be classified as FPI and will enjoy some exemptions from U.S. security reporting and regulatory requirements.

Table 1 and Table 2 are reproduced from Moreira and Ramos (2019). Table 1 summarizes the different regulation requirements for foreign firms related to financial statements. FDIs must disclose their annual reports using the same form used by U.S. firms (10-K Form) within 60 to 90 days after the end of the fiscal year and they must file quarterly reports using a 10-Q Form, while FPIs can use a different form to file their annual reports (20-F Form or 40-F Form for Canadian and Israeli firms) with a longer deadline (4 months), and do not have to file quarterly reports. FDIs must file quarterly reports.

TABLE 1: FOREIGN FIRMS REGULATION RELATED TO FINANCIAL STATEMENTS

	FDIs	FPIs
Annual Reporting	Must file annual report using the Form 10-K. Form 10-K prescribes specific disclosures and must be filed within 60-90 days after the fiscal year end.	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 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. FPIs that produce interim financial statements due to home country requirements disclose those statements in the US using Form 6-K.
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: Moreira and Ramos (2019).

Another exemption is related to the Financial Statement Accounting Standard, 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 are no longer required to reconcile their financial statements in accordance with U.S. GAAP. On the other hand, 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 in accordance to 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 shows foreign firms regulation related to insider information and corporate governance. While foreign firms classified as FDI must file initial statements of beneficial ownership of executives, directors, among others; as well as any change in the beneficial ownership and must comply with the Regulation Fair Disclosure (Reg. FD); foreign firms classified as FPIs are exempt from all of them.

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

	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.
U.S. stock exchange corporate governance requirements	Must comply with the stock exchange governance requirements when listed on NYSE or NASDAQ	NYSE and NASDAQ allow FPIs to follow their home country corporate governance practices.

Source: Moreira and Ramos (2019).

FDIs must disclose every voting procedure, nominated candidates for its board of directors, and compensation of directors and executives. They also must comply with the stock exchange governance requirements when listed on New York Stock Exchange (NYSE) or NASDAQ Stock Market. However, FPIs are not required to follow the proxy rules and can follow their home country corporate governance practices when listed on NYSE or NASDAQ.

2.2 Hypothesis Development

Das and Saugaran (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 forecasts 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 Saudagar (2002) applied the same methodology that Das and Saugaran (1998) 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 Saugaran (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 Saugagaran (1998) or Das and Saugagaran (2002) considered the different regulated groups of foreign firms. Since prior literature have shown that a more informative disclosures, a better information environment, compliance with the Reg. FD, more corporate governance, compliance with U.S. GAAP are related to more analysts monitoring and forecasting earnings, more accurate forecasts and more consensus within individual analysts (Lang & Russell, 1996; Hope, 2003; Abdallah, Abdallah, & Ismail, 2012; Kross & Suk, 2012), we expect to find different results when comparing FDIs to U.S. firms than FPIs to U.S. firms.

According Lang and Russell (1996), 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. Concluding that a better information environment, with more and better disclosures, leads to more analyst monitoring. Since FDIs are subject to the same regulation as U.S. firms and FPIs have disclosure exemptions we have hypothesis H1a and H1b:

H1a: There is no difference on the number of analysts following FDIs and U.S. firms.

H1b: There is less analysts following FPIs than U.S. firms.

If full compliance with SEC regulation provide more informative disclosures about future earnings, analysts' forecasts will be more accurate. Then, we have H2a and H2b:

H2a: There is no difference on forecast accuracy of FDIs and U.S. firms.

H2b: FPIs have less accurate forecasts than U.S. firms.

A negative relation between disclosure and forecast dispersion is expected when analysts differ primarily in their private information (Lang & Russell, 1996). Then, if analysts based on a similar forecast model and full compliance with SEC regulation provide more informative disclosures, we have H3a and H3b:

H3a: There is no difference on forecast dispersion of FDIs and U.S. firms.

H3b: FPIs have more disperse forecasts than U.S. firms.

3 RESEARCH DESIGN

3.1. Analyst Forecast Properties

Following prior literature (Lang & Russell, 1996; Mikhail, Walther, & Willis, 1997; Duru & Reeb, 2002; Hong & Kubik, 2003; Hope, 2003; Chen, Krishnan, & Sami, 2015; Ayres, Huang, & Myring, 2017; Wang & Yu, 2017) we use the proxies for accuracy, dispersion and analyst following bellow.

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:

$$Accuracy_{it} = - \left| \frac{EPS_{it} - MeanForecast_{it}}{P_{it}} \right| \quad (1)$$

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

$$Dispersion_{it} = \frac{StdForecast_{it}}{P_{it}} \quad (2)$$

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 .

3.2. Econometric Models

To capture different accuracy and dispersion between U.S. firms, FPIs and FDIs, we estimate equations (3) and (4), using a Tobit model with robust standard errors, including year and industry fixed effects. The equation (3) requires a Tobit model using 0 as upper limit, because *Accuracy* _{it} is never positive; and the equation (4) requires a Tobit model using 0 as lower limit, because *Dispersion* _{it} is never negative.

$$Accuracy_{it} = \alpha_0 + \alpha_1 FPI_{it} + \alpha_2 FDI_{it} + \sum \alpha_k Control_{it}^k + \varepsilon_{it} \quad (3)$$

$$Dispersion_{it} = \beta_0 + \beta_1 FPI_{it} + \beta_2 FDI_{it} + \sum \beta_k Control_{it}^k + \varepsilon_{it} \quad (4)$$

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, we estimated equation (5) using Poisson model with robust standard errors, including year and industry fixed effects:

$$AnalystFollowing_{it} = \gamma_0 + \gamma_1 FPI_{it} + \gamma_2 FDI_{it} + \sum \gamma_k Control_{it}^k + \varepsilon_{it} \quad (5)$$

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.

3.3. Control Variables

Table 3 accommodates the description of the control variables used for the equation models (3), (4) and (5). Equations (3) and (4) also include *AnalystFollowing* _{it} as control variable. The control variables included have been shown in prior work to be related to forecast properties (Lang & Russell, 1996; Chaney, Hogan, & Jeter, 1999; Duru & Reeb, 2002; Chen, Krishnan, & Sami, 2015; Ayres, Huang, & Myring, 2017; Wang & Yu, 2017).

Once, there is more information available on larger firms, *Size* is expected to impact on forecast properties. We also controlled for LEVERAGE, because earnings for firms with high leverage are more volatile making it harder for analysts to forecast future earnings.

TABLE 3: CONTROL VARIABLES

Variable	Description
$Size_{it}$	natural log of total assets.
ROA_{it}	return on assets, calculated as net income at period t divided by total assets at period (t-1).
$EarningsVol_{it}$	standard deviation of firm i's return on assets for the previous five years.
$\Delta Earnings_{it}$	absolute value of earnings per share at t less earnings per share at (t-1) divided by earnings per share at (t-1).
$Loss_{it}$	dummy variable assuming value 1 if firm i reported negative net income at period t, 0 otherwise.
$Stock_Return_{it-1}$	annual stock return at period (t-1).
$Leverage_{it}$	total debt divided by total assets.
MTB_{it}	market value of equity scaled by the book value of equity.

Source: Produced by the author.

Prior research shows that earnings and their attributes are related to forecast properties. We controlled for earnings level by including return on assets (*ROA*) (Hwang, Jan, & Basu, 1996; Eames, Glover, & Kennedy, 2002), a dummy variable for negative net income (*LOSS*) (Brown, 2001), earnings volatility (*EarningsVol*) (Gu & Wang, 2005) and change in earnings per share ($\Delta Earnings$) (Lang & Russell, 1996).

Once firms with higher growth prospects are harder to predict, we controlled for growth prospects including the market-to-book ratio (*MTB*) (Tan, Wang, & Welker, 2011; Barniv & Myring, 2015).

4 RESULTS

4.1. Sample

We started by collecting FPIs information on the SEC's website. The SEC makes available annually FPIs lists from 2000 to 2015. Therefore, we matched the names at the SEC lists with CRSP historical names and received a CRSP and COMPUSTAT id information for that firm (gvkey and permno). The left names of foreign firms on the SEC FPIs lists that we could not match using CRSP historical names. We hand checked one-by-one using COMPUSTAT and CRSP firms' names. Out of 17530 firms-years observations from 2000 to 2015, we identified 15559 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.

We got financial information from COMPUSTAT, returns and stock prices from CRSP, and analyst information from I/B/E/S. Table 4 shows the sample construction process. After merging COMPUSTAT, CRSP and I/B/E/S with the FPIs list, we exclude FPIs voluntarily disclosing 10-K Forms to avoid self-selection problems and observations. Following Das and Saugagaran (1998) methodology, we performed a size-matching without replacement, for each foreign firm, we 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), resulting in the final sample with 452 U.S. firms, 119 FDI's and 333 FPI's.

TABLE 4: SAMPLE CONSTRUCTION

	U.S. Firms		FDIs		FPIs	
	Nº. Firms- Years Obs.	Of Firms	Nº. Firms- Years Obs.	Of Firms	Nº. Firms- Years Obs.	Of Firms
Merged COMPUSTAT, CRSP and FPIs' Lists (2000-2015) with available information	82680	10113	1849	236	9083	1243
Deleted Foreign Private Issuer voluntarily disclosing 10-K Form	0	0	-175	-15	-1005	-134
Deleted Firm-Year with Missing Information	-56302	-5572	-844	-100	-6933	-761
SIZE MATCHED SAMPLE	-24536	-4089	-25	-2	-108	-15
FINAL SAMPLE	1842	452	805	119	1037	333

Source: Produced by the author.

Table 5 contains the 10 most frequent countries by foreign firms group. The majority of FDIs observations come from Bermuda (27.95%), Ireland (22.48%), United Kingdom (15.16%), Switzerland (7.45%) and The Netherlands (6.46%). FPIs observations come from The Cayman Islands (17.94%), Israel (14.37%), United Kingdom (5.98%), Canada (5.50%) and Marshall Islands (5.30%).

TABLE 5: FOREIGN FIRMS COUNTRY FREQUENCY

FDIs			FPIs		
Country Code	Freq	%	Country Code	Freq	%
BMU	225	27.95%	CYM	186	17.94%
IRL	181	22.48%	ISR	149	14.37%
GBR	122	15.16%	GBR	62	5.98%
CHE	60	7.45%	CAN	57	5.50%
NLD	52	6.46%	MHL	55	5.30%
CYM	37	4.60%	NLD	54	5.21%
CAN	19	2.36%	BMU	39	3.76%
SGP	16	1.99%	LUX	31	2.99%
PAN	16	1.99%	CHE	28	2.70%
CUW	12	1.49%	IRL	27	2.60%
Total	740	91.93%	Total	688	66.35%

Source: Produced by the author.

4.2. Descriptive Statistics

Descriptive statistics of analyst forecasts' properties and control variables are shown at Table 6. The last three columns show the p-value of the mean tests; where the columns **US-FDI**, **US-FPI** and **FDI-FPI** contain the p-value of the hypothesis tests $H_0: US\ mean - FDI\ mean = 0$, $H_0: US\ mean - FPI\ mean = 0$ and $H_0: FDI\ mean - FPI\ mean = 0$, respectively.

FDIs presented more analyst monitoring, more accurate and less disperse forecasts than FPIs and similar U.S. firms, on average. FPIs showed a lower number of analysts following, less accurate and more disperse forecasts than similar U.S. firms. When comparing FDIs and FPIs characteristics, we observe that FDIs are bigger, with more volatile earnings, more leverage and more growth prospects than FPIs.

Table 7 contains variables correlations using the final sample, including U.S. firms, FDIs and FPIs, Pearson correlation above the diagonal and Spearman correlations below the diagonal.

TABLE 6: DESCRIPTIVE STATISTICS

Variables ^a	(1) US FIRMS			(2) FDIs			(3) FPIs			Mean Test Pr(T > t)		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	US-FDI	US-FPI	FDI-FPI
<i>Accuracy</i>	1842	-0.0194	0.1223	805	-0.0105	0.0804	1037	-0.0687	0.2681	0.0261	0.0000	0.0000
<i>Dispersion</i>	1842	0.0191	0.1188	805	0.0069	0.0263	1037	0.0672	0.2484	0.0000	0.0000	0.0000
<i>AnalystFollowing</i>	1842	12.8426	9.1244	805	13.7602	9.0010	1037	7.7030	6.3952	0.0169	0.0000	0.0000
<i>Size</i>	1842	8.1187	1.8552	805	8.3410	1.5514	1037	7.9931	2.1753	0.0014	0.1176	0.0001
<i>ROA</i>	1842	0.0362	0.1173	805	0.0525	0.1068	1037	0.0574	0.1170	0.0004	0.0000	0.3511
<i>EarningsVol</i>	1842	0.0665	0.0926	805	0.0778	0.1098	1037	0.0695	0.0812	0.0113	0.3736	0.0731
<i>ΔEarnings</i>	1842	1.4968	4.1515	805	1.5944	4.1397	1037	1.5836	3.9690	0.5778	0.5847	0.9546
<i>Loss</i>	1842	0.2036	0.4028	805	0.1739	0.3793	1037	0.1986	0.3992	0.0695	0.7516	0.1778
<i>StockReturn_{t-1}</i>	1842	0.1547	0.5247	805	0.1682	0.5617	1037	0.1912	0.7383	0.5612	0.1602	0.4482
<i>Leverage</i>	1842	0.1980	0.1852	805	0.1913	0.1715	1037	0.1759	0.1804	0.3695	0.0019	0.0625
<i>MTB</i>	1842	3.0697	4.1787	805	2.9797	4.1331	1037	2.6601	3.3489	0.6089	0.0041	0.0744

^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.

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 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.

4.3. Regressions Results

The regression model (3) were estimated using a Tobit model with 0 as upper limit, the regression model (4) were estimated using a Tobit model with 0 as lower limit and the regression model (5) was estimated using Poisson model, both with robust standard errors, including year and industry fixed effects. The results are displayed at Table 8.

Table 8 Column (1) contains the results of Equation (3). *Accuracy_{it}* appear to be positively related to *Size_{it}*, *ROA_{it}*, *Stock_Ret_{it}* and *MTB_{it}*; and negatively related to *EarningsVol_{it}*, $\Delta Earnings_{it}$, *Loss_{it}* and *Leverage_{it}*. This result suggests 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. *FPI* coefficient is negative and statistically significant at 1% level, indicating that analysts' forecasts are less accurate for FPIs than similar U.S. firms. *FDI* is statistically insignificant, implying that we do not have evidence of different forecast accuracy for FDI and similar U.S. firms. Therefore, supporting our hypothesis H1a and H1b.

Equation (4) results are at Table 8 Column (2). *Dispersion_{it}* is positively related to *Analyst_Following_{it}*, *Earnings_Vol_{it}*, $\Delta Earnings_{it}$, *Loss_{it}* and *Leverage_{it}*; and is negatively related to *Size_{it}*, *ROA_{it}*, *Stock_Ret_{it}* and *MTB_{it}*. Thus, 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. *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 our hypothesis H2b. *FDI_{it}* is negative and statistically significant at 1% level, suggesting that analysts' forecasts of FDI are less disperse than analysts' forecasts of similar U.S. firms.

Table 6 Column (3) shows the results of the regression model (3). *Analyst_Following_{it}* is positively related to *Size_{it}*, *ROA_{it}*, *Earnings_Vol_{it}*, *Loss_{it}*, and *MTB_{it}*. Thus, larger firms, with higher performance, more volatile earnings, loss and more growth are more likely to have more analysts forecasting their earnings than smaller, with lower performance, less volatile earnings, profits and less growth firms. *Analyst_Following_{it}* is negatively related to *Leverage_{it}*, suggesting that risky firms have less likely to have more analysts forecasting their earnings. *FPI_{it}* and *FDI_{it}* coefficients are negative and positive statistically significant at 1% level, respectively. Thus, FPIs are less likely to be subject to a higher level of analyst monitoring than similar U.S. firms, supporting our hypothesis H3b, and FDI are more likely to be subject to a higher level of analyst monitoring than similar U.S. firms.

TABLE 7: PEARSON AND SPEARMAN CORRELATIONS

Variables ^a	Accuracy	Dispersion	AnalystFollowing	Size	ROA	EarningsVol	ΔEarnings	StockReturn _{t-1}	Leverage	MTB
Accuracy	1	-0.78636***	0.11417***	0.12509***	0.2396***	-0.13281***	-0.13517***	0.05535***	-0.09567***	0.09622***
Dispersion	-0.62627***	1	-0.09169***	-0.11762***	-0.23449***	0.14619***	0.11169***	-0.06655***	0.1103***	-0.0937***
AnalystFollowing	0.33525***	-0.15824***	1	0.49451***	0.16283***	-0.11674***	-0.03712**	-0.02782*	0.0637***	0.06373***
Size	0.14814***	-0.05106***	0.5203***	1	0.16331***	-0.3785***	-0.0767***	-0.11287***	0.19612***	-0.08739***
ROA	0.37068***	-0.37983***	0.19422***	0.07225***	1	-0.23119***	-0.14736***	0.16604***	-0.13287***	0.15723***
EarningsVol	-0.24394***	0.27018***	-0.07205***	-0.38853***	-0.0886***	1	0.14122***	0.11669***	-0.04671***	0.06584***
ΔEarnings	-0.28209***	0.28126***	-0.07512***	-0.14949***	-0.32371***	0.39777***	1	-0.01942	0.05902***	-0.0555***
StockReturn _{t-1}	0.14411***	-0.15686***	0.01925	-0.03428**	0.22927***	-0.03297**	-0.0588***	1	-0.02627	0.12028***
Leverage	-0.05872***	0.10347***	0.1445***	0.28528***	-0.16074***	-0.07963***	0.05491***	-0.02784*	1	0.02911*
MTB	0.41698***	-0.42729***	0.16759***	-0.08593***	0.43302***	0.0281*	-0.20626***	0.19757***	-0.08035***	1

^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. *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).

Source: Produced by the author.

TABLE 8: REGRESSION RESULTS

Variables ^a	Accuracy ^b		Dispersion ^b		Analyst Following	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
<i>FDI</i>	0.0034	(-0.6953)	-0.0124	(-3.2084)***	0.0628	(3.3124)***
<i>FPI</i>	-0.0617	(-6.0634)***	0.0601	(6.5224)***	-0.5403	(-18.9614)***
<i>AnalystFollowing</i>	0.0003	(-0.7278)	0.0009	(2.3514)**	-	-
<i>Size</i>	0.0084	(3.4352)***	-0.0071	(-3.1149)***	0.2497	(42.4203)***
<i>ROA</i>	0.2078	(3.5952)***	-0.1808	(-3.2756)***	0.8216	(6.0502)***
<i>EarningsVol</i>	-0.1249	(-2.7858)***	0.1452	(3.0408)***	0.3173	(2.5727)**
Δ <i>Earnings</i>	-0.0034	(-2.3344)**	0.002	(1.7954)*	-0.0005	(-0.2547)
<i>Loss</i>	-0.028	(-2.2180)**	0.0256	(2.2009)**	0.1274	(4.1268)***
<i>StockReturn_{t-1}</i>	0.0118	(1.7906)*	-0.0155	(-2.5199)**	0.0024	(-0.1215)
<i>Leverage</i>	-0.0798	(-3.5219)***	0.0818	(3.9573)***	-0.3479	(-5.7713)***
<i>MTB</i>	0.0022	(2.5402)**	-0.0017	(-2.7283)***	0.0139	(5.3610)***
<i>Constant</i>	0.0075	(-0.2997)	0.0058	(-0.2102)	0.424	(4.2580)***
<i>Year Dummies</i>		Yes		Yes		Yes
<i>Industry Dummies</i>		Yes		Yes		Yes
<i>Observations</i>		3684		3684		3684
<i>Pseudo R-Squared</i>		-0.3858		-0.2053		0.3212
Test on coefficients			F-Stat.			
<i>FDI-FPI</i>		(38.02)***		(57.92)***		(348.45)***

^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. Δ *Earnings* 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).

Source: Produced by the author.

The tests on coefficients, testing whether the *FDI* coefficient is statically different from the *FPI* coefficient, are all significant at 1% level. Therefore, FPIs have less accurate and more disperse earnings forecasts than FDIs, they are also less likely to be in a higher analyst monitoring level than FDIs.

5 CONCLUSION

In this study we aimed to analyze whether the difference in analysts forecast properties, such as accuracy, dispersion and analyst following, between U.S. and foreign firms listed on U.S. exchanges are due to different regulation level. In particular, if the SEC regulation exemptions for FPIs are leading to a worse information environment, consequently, to less analyst monitoring, less accurate and more disperse forecasts.

With a sample containing foreign firms listed in the U.S. market, between 2000 to 2015, and size-matched U.S. firms, 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 similar U.S. firms.

Consistent with prior researches (Das & Saugagaran, 1998; Das & Saudagaran, 2002), foreign firms classified as FPIs have less analysts following, less accurate and more disperse forecasts than similar U.S. firms and FDIs. However, we did not find statically different

accuracy between FDIs and similar U.S. firms. Moreover, FDIs presented more analyst following and less disperse forecasts than similar U.S. firms.

Concluding that, while foreign firms complying with full reporting, disclosure and corporate governance regulation have a better information environment than similar U.S. firms, foreign firms with regulation exemptions have a worse information environment than similar U.S. firms leading to less analyst monitoring, less precise forecasts and less consensus between individual analysts.

For future research we intend to use a difference-in-difference model to investigate whether analysts forecast properties of foreign firms vary when they change status, since the FPI status of foreign firms is reviewed every year. To analyze whether there is a decline in the information environment quality when a foreign firm changes from FDI to FPI and whether there is an increase in the information environment quality when a foreign firm changes from FPI to FDI.

BIBLIOGRAPHY

- Abdallah, A. A.-N., Abdallah, W., & Ismail, A. (2012). Do accounting standards matter to financial analysts? An empirical analysis of the effect of cross-listing from different accounting standards regimes on analyst following and forecast error. *The International Journal of Accounting*, 47, 168-197.
- Ayres, D., Huang, X., & Myring, M. (2017). Fair value accounting and analyst forecast accuracy. *Advances in Accounting*, 37, 58-70.
- Barniv, R. R., & Myring, M. (2015). How would the differences between IFRS and U.S. GAAP affect U.S. analyst performance? *Journal of Accounting and Public Policy*, 34(1), 28-51.
- Brown, L. D. (2001). A temporal analysis of earnings surprises: Profits versus losses. *Journal of Accounting Research*, 39(2), 221-241.
- Chaney, P. K., Hogan, C. E., & Jeter, D. C. (1999). The effect of reporting restructuring charges on analysts' forecast revisions and errors. *Journal of Accounting and Economics*, 27(3), 261-284.
- Chen, L., Krishnan, J., & Sami, H. (2015). Goodwill impairment charges and analyst forecast properties. *Accounting Horizons*, 29(1), 141-170.
- Coffee, J. C. (2002). Racing towards the Top?: The Impact of Cross-Listings and Stock Market Competition on International Corporate Governance. *Columbia Law Review*, 102(7), 1757-1831.
- Coffee, J. C. (1999). The future as history: The prospects for global convergence in corporate. *Northwestern University Law Review*, 93(3), 641-708.
- Das, S., & Saudagaran, S. M. (2002). Accuracy of Analysts' Earnings Forecast: A Comparison of Non-U.S. Cross-Listed Firms and U.S. Multinationals. *Journal of International Accounting Research*, 1(1), 61-74.
- Das, S., & Saugagaran, S. M. (1998). Accuracy, Bias, and Dispersion in Analysts' Earnings Forecasts: The Case of Cross-Listed Foreign Firms. *Journal of International Financial Management and Accounting*, 9(1), 16-33.
- Duru, A., & Reeb, D. M. (2002). International diversification and analysts' forecast accuracy and bias. *The Accounting Review*, 77(2), 415-433.
- Eames, M., Glover, S. M., & Kennedy, J. (2002). The association between trading recommendations and broker analysts' earnings forecasts. *Journal of Accounting Research*, 40(1), 85-104.
- Gu, F., & Wang, W. (2005). Intangible assets, information complexity, and analysts' earnings forecasts. *Journal of Business Finance & Accounting*, 32(9/10), 1673-1702.
- Hong, H., & Kubik, J. D. (2003). Analyzing the analysts: Career concerns and biased earnings forecasts. *Journal of Finance*, 58(1), 313-351.

- Hope, O.-K. (2003). Accounting policy disclosures and analysts' forecasts. *Contemporary Accounting Research*, 20(2), 295-321.
- Hwang, L.-S., Jan, C.-L., & Basu, S. (1996). Loss firms and analysts' earnings forecast errors. *The Journal of Financial Statement Analysis*, 1(2), 18-30.
- Kim, Y., Li, H., & Li, S. (2012). Does eliminating the Form 20-F reconciliation from IFRS to U.S. GAAP have capital consequences? *Journal of Accounting and Economics*, 53(1), 249-270.
- Kross, W. J., & Suk, I. (2012). Does Regulation FD work? Evidence from analysts' reliance on public disclosure. *Journal of Accounting and Economics*, 53, 225-248.
- Lail, B. E. (2014). Do cross-listers bond to U.S. markets? An examination of earnings quality around SOX. *Advances in Accounting, incorporating Advances in International Accounting*, 30, 354-366.
- Lang, M. H., & Russell, L. J. (1996). Corporate Disclosure Policy and Analyst Behavior. *American Accounting Association*, 71(4), 467-492.
- Lang, M. H., Lins, K. V., & Miller, D. P. (2003). ADRs, Analysts, and Accuracy: Does Cross Listing in the United States Improve a Firm's Information Environment and Increase Market Value? *Journal of Accounting Research*, 41(2), 317-345.
- Mikhail, M. B., Walther, B. R., & Willis, R. H. (1997). Do security analysts improve their performance with experience? *Journal of Accounting Research*, 35, 131-157.
- Moreira, N. C., & Ramos, F. (2019). *Does reporting regulation affect earnings quality? The case of foreign firms*. (Working Paper Number SSRN 3330664). Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3330664.
- Naughton, J. P., Rogo, R., Sunder, J., & Zhang, R. (2019). SEC monitoring of foreign firms' disclosures in the presence of foreign regulators. *Review of Accounting Studies*, 23, 1355-1388.
- Tan, H., Wang, S., & Welker, M. (2011). Analyst following and forecast accuracy after mandated IFRS adoptions. *Journal of Accounting Research*, 49(5), 1307-1357.
- Wang, J. W., & Yu, W. W. (2017). Insider Ownership and Analyst Forecast Properties. *Journal of Accounting, Auditing & Finance*, 1-26.