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What you say and how you say it: Information disclosure in Latin American firms

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ABSTRACT

Firms in Latin America could differentiate themselves by adopting better information disclosure practices. In this paper, we construct an Information Disclosure Index (IDI) for a sample of 454 firms in the six largest Latin America countries. We look at 4.622 company reports and show that firms with better disclosure practices have better market valuation (Tobin's Q) and better accounting financial performance (return on equity, ROE). We then measure the tone of the information disclosed using word content analysis and find that uncertainty in tone is negatively associated with firm valuation and accounting financial performance while a positive tone in corporate communications is positively associated with firm value and performance. This paper shows that the tone in corporate communications is as relevant as the amount of information disclosed to the market.

1. Introduction

La Porta, López de Silanes, Shleifer, and Vishny (1997, 1998, 1999, 2000, 2002) and Chong and López-de-Silanes (2007) have shown that legal protection varies greatly around the world. This is usually explained by the different legal origins and foundations (e.g., Common Law versus French Civil Law). All Latin American countries share the same foundation in French Civil Law, which is known to be a hostile legal environment for investors (Chong & López-de-Silanes, 2007; La Porta et al., 1997, 2000).

Latin America is also known as a region with low levels of information disclosure by firms (Patel, Balic, & Bwakira, 2002). According to Healy and Palepu (1993), conflicts of interest between managers and investors and information asymmetries between firms' insiders and outsiders could cause some firms to be misvalued, a problem analogous to the “lemons” problem by Akerlof (1970). When a given firm decides to disclose information, one can argue that the purpose is to adopt governance practices that differentiate it from others so that it becomes more attractive to outside investors. Disclosure and transparency practices are a key component of corporate governance (Morey, Gottesman, Baker, & Godridge, 2009; OECD, 2015; Patel et al., 2002). Latin America offers an ideal setting for firms willing to signal better governance, as explained in Garay and González (2008). Disclosure of valuable and credible information to the market can

partly compensate for the weak legal environment in which Latin American firms operate, and so can enhance their attractiveness to investors. Klapper and Love (2004) and Durnev and Kim (2005) provide theoretical and empirical evidence supporting the idea that corporate governance practices matter more in countries where legal protection is weak.

In addition, different studies have shown a positive impact for good corporate governance practices on firms' current and future operating performance (e.g., Bhagat & Bolton, 2008). Good governance practices reduce firms' cost of debt and equity, leading to better financial performance (Botosan, 1997; Lambert, Leuz, & Verrecchia, 2007; Sengupta, 1998). Following this line of reasoning, disclosure and transparency should be positively correlated with firms' current performance and future prospects, and hence firms that are more transparent should show better market valuations and accounting performance.

We also posit that not only the amount of information but also the “tone” in corporate communications could influence and signal better firm valuation and performance. González, Guzmán, Téllez, and Trujillo (2019) show that tone matters for underpricing even in firms with good governance practices. According to these authors, tone in corporate communications is a strong signaling mechanism for market participants. Tone is a credible signal regarding a firm's ex ante uncertainty and hence impacts investors' assessment of the firm (Beatty & Ritter,

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1986; González et al., 2019; Loughran & McDonald, 2013). From this discussion, we can conclude that tone in corporate communications is related to firms' current and future operating performance, even in firms with good governance practices.

In this paper we review the level of information disclosure for 454 listed firms in six Latin American countries. We begin by constructing an Information Disclosure Index (IDI) comprised of fifty questions divided into nine different sections and three different clusters. This allows us to analyze the disclosure practices reflected in 4,622 company reports. In particular, we test whether the IDI shows any impact on firms' market value (Tobin's Q) and accounting financial performance (ROE), also studying the relative importance of each IDI cluster. We then go one step further and measure the tone of the information disclosure through word content analysis. Using the financial dictionaries proposed by Loughran and McDonald (2011a), we build two measures of tone. We combine the uncertain, negative, and weak modal word lists to measure uncertainty in a subsection of the annual report known as the president's letter, arguing that this is the subsection most used by investors to gauge the past performance and future expectations of firms. We also measure positivity in the text, again using the word list proposed by Loughran and McDonald (2011a). We then posit that in terms of information disclosure, it is not only what you say that counts but also how you say it.

Our main information source was the annual reports posted on each firm's web page, one of the most important channels for firms to communicate with stakeholders according to the Organization for Economic Co-operation and Development (OECD). We also use all available information from other sources (e.g., regulatory agencies).

We show that higher disclosure is positively associated with higher firm valuation (Tobin's Q) and better ROE, a benefit that accrues directly to investors, actual or potential. In terms of the different sections of our IDI, we perform a principal component analysis (PCA) and identify three clusters among the 50 questions of our index. The groups associated with "board of directors, risk management, and responsibility to others" and "corporate governance, corporate social responsibility, and social dimension" show positive statistical and economic significance. The group for "company information, executive summary and financial" is negatively associated with Tobin's Q and ROE because of an inverse relationship between financial disclosure and earning management. When we introduce tone variables, we find that uncertainty in tone is negatively associated with firm valuation and accounting financial performance while positivity in corporate communications is positively associated with firm value and performance.

This study differs from other research concerned with the impact of transparency on firm value in several ways. To the best of our knowledge, this is the first effort to simultaneously analyze the relevance not only of the amount of information disclosure but also the tone in corporate communications. This allows us to show that both amount and tone are relevant signals for firm valuation and performance. This is also among the first efforts to measure tone in languages other than English,¹ by using the financial word list proposed by Loughran and McDonald (2011a). By measuring tone in the president's letter, a very particular and important source of information, we shed light on the importance of meaning in information disclosure for Latin American firms.

In addition, although Patel et al. (2002) analyzed the same set of countries that we do (except for Colombia) they base their conclusions on only one year of data and do not consider the dynamic aspect of

Latin American firms' disclosure practices. They also do not consider control variables and multivariate relations in their samples. Garay, González, Guzmán, and Trujillo (2013) developed a disclosure index but look only at information provided by the firm's internet site, without considering other information channels as we do. Finally, including a principal component analysis (PCA) allows us to identify different clusters of information disclosure and to measure their relative importance in terms of transmission to the market.

The rest of the paper is organized as follows. First, we review the literature and state our hypotheses. Second, we present the methodology, the data sources and explain the construction of the IDI. Third, we discuss the main results. The last section concludes.

2. Literature review

Corporate governance is the set of mechanisms (internal and external) that deals with conflicts of interest between different stakeholders such as managers, boards of directors, controlling shareholders, minority shareholders, family members, and creditors, among others (Tirole, 2001). In theory good corporate governance must have a positive effect on firm performance and value attributable to better practices and higher investor confidence, which reduces the cost of capital and therefore increases firm value (La Porta et al., 2002). This outcome has been addressed extensively in the literature. For instance, Gompers, Ishii, and Metrick (2003) create a corporate governance index using 24 governance rules; they find that higher index scores are correlated with higher firm value in the United States. Using samples of firms from emerging and developed economies, La Porta et al. (1997) conclude that countries with legal systems based on French law provide less protection to investors, and consequently have less-developed capital markets. In addition, La Porta et al. (1998, 2000) show that external determinants (e.g., legal origin) have a great influence on the level of investor protection and the design of governance mechanisms.

For emerging markets, Klapper and Love (2004) study 25 countries, showing that better corporate governance is highly correlated with better operating performance (e.g., ROA, ROE) and market valuation (e.g., Tobin's Q). Research in Latin America has also shown that, on average, a good set of corporate governance practices and policies is positively related to firm value (Leal & Carvalho-da-Silva, 2005, for Brazil; Chong & López-de-Silanes, 2006, for Mexico; Lefort & Walker, 2005, for Chile; and Garay & González, 2005, for Venezuela). The positive relation between corporate governance practices and firm value in Latin America is especially important given the weak protection for investors (French Civil Law tradition). This creates an opportunity for Latin American firms to differentiate themselves and attract potential investors by disclosing more information than their peers. Easterbrook and Fischer (1991) and Diamond (1989, 1991) offer arguments about how firms could signal their quality by using better corporate governance practices. As expected, empirical evidence in Klapper and Love (2004) and Durnev and Kim (2005) clearly demonstrates the fact that corporate governance practices are more valuable in environments with low investor protection. As a result, companies may enhance market perceptions of their value by improving the quality, amount, and tone of the information they decide to disclose (Patel et al., 2002).

Other benefits of information disclosure are the reduction of liquidity risk and adverse selection. A greater amount of firm-related information improves market liquidity, thus making it possible for investors to engage in long-term corporate projects that could be perceived as risky but profitable by the market (Levine, 1997). Adverse selection, which represents the cost for investors to trade with agents who have more information, could be lowered by a firm's decision to disclose information. Diamond and Verrecchia (1991) argue that the cost of adverse selection is much lower (measured as the average bid/ask spreads) when firms report relatively high levels of information to the market. Moreover, Claeys, Caubergh, and Pandelaere (2016) argue that firms going through a crisis should self-disclose negative

¹ As far as we know, González et al. (2019) is currently the only research paper that measures tone in the IPO prospectus in languages other than English (Spanish and Portuguese) to study the effect of tone on firms' underpricing. They find a statistically significant relationship between uncertainty in tone and IPO underpricing, but no significance between positivity in tone and IPO underpricing.

information to lessen the impact on the firm's reputation. In terms of information disclosure about corporate social responsibility, there is also empirical evidence showing a positive impact in terms of Tobin's Q, when firms disclose more information in this regard (Nekhili, Nagati, Chtioui, & Rebollo, 2017).

In the same vein, Hermalin and Weisbach (2012) show that there are both costs and benefits when a firm chooses to reveal information to the market. Their model suggests the existence of an optimum level of information disclosure. As a result, any given firm could choose to adopt less than maximal disclosure so long as their market value is maximized. In general, a firm's information disclosure should be positively related to its value.

Regarding the relationship between disclosure and accounting performance (ROE), Diamond and Verrecchia (1991) show that revealing public information to reduce information asymmetry, reduces a firm's cost of capital. According to Sengupta (1998) firms with high disclosure benefit from a lower cost of debt, which is consistent with the argument that more disclosure should reduce debtholders' perception of default risk for the disclosing firm. All other things being equal, a lower cost of debt implies a higher net income, and hence, a higher return on equity. Botosan (1997) and Lambert et al. (2007) report similar results when analyzing the relationship between the cost of equity and the cost of capital, respectively.

Francis, Khurana, and Pereira (2005) show that the above-mentioned relationship between disclosure and cost of external financing holds in the international setting also, specifically regarding their sample of firms from 34 different countries, including Brazil, Chile, Colombia and Mexico. These authors thought it relevant to test the effectiveness of corporate disclosure outside the United States, especially in environments with underdeveloped legal and financial systems. As stated above, Latin America's weak investor protection and hostile legal environment make good firm practices and voluntary disclosure more valuable (Klapper & Love, 2004). Overall, more transparent firms should enjoy a lower cost of financing, lower information asymmetries, higher market valuations and accounting performance, which leads us to test the following hypothesis:

Hypothesis 1. Higher information disclosure is positively related to firm valuation and accounting performance in Latin America.

The empirical literature has shown that online information and electronic word of mouth have a positive influence on the investor decision-making process (Bi, Liu, & Usman, 2017). Papers based mostly on internet-related information disclosure have reported a positive relation between the level of disclosure and firm value. For example, Grzybowski & Wójcik, 2006, for British and Polish corporations; Geerings, Bollen, & Hassink, 2003, for the Euronext Stock Exchange; Ismail, 2002, for the Gulf Cooperation Council countries; Patel et al., 2002, for Latin America with the exception of Colombia; and more recently, Garay et al., 2013 for Latin America.

As stated previously, the adverse selection cost is lower when insiders who are better informed than outsiders publicly disclose information about the firm. In this paper, we argue that not only the amount (H1) but also the tone of information reported by insiders convey information about firms' current performance and valuation. That is, information disclosure is not just how much you say but what you mean to say and how you say it (Li, 2010).

Managers usually transmit information through different avenues, some of them quantitative, such as financial statements, historical records, and targets, among others, and some qualitative, such as opinions, expectations, views of current situations, among others. The channels through which this information is conveyed could be formal, such as the IPO prospectuses, quarterly annual reports, shareholder assembly releases, or informal, as posts in social media or newspapers columns. For example, the impact of social media in the realm of financial analysis is playing an important role. Many financial analysts and market experts are more willing and able to broadcast their views

not only in traditional newspaper columns in the financial press but also in new social media platforms.

Chen, De, Hu, and Hwang (2014) and Dougal, Engelberg, Garcia, and Parsons (2012) report that investors' opinions in the press and on social media are good predictors of stock returns and earnings surprises. Dougal et al. show that columnists' average persistent "bullishness" or "bearishness" explain an additional 35% of the variance in stock market performance. In the same vein, Bajo and Raimondo (2017) studied > 27 thousand newspaper articles regarding IPOs in the United States and found that media play a pivotal role as a signal mechanism. They argue that newspaper articles affect investor beliefs about an IPO deal. They show for example that positive tones influence IPO underpricing, and this effect is stronger when the article is published close to the IPO date and by newspapers that are more reputable.

Other research has studied the relationship between textual sentiment and corporate information disclosure. Li (2006) finds a negative association between risk sentiment and future earnings. Feldman, Govindaraj, Livnat, and Segal (2010) and Li (2010) find a significant correlation between contemporaneous returns and future earnings and the tone used in the management discussion and analysis (MD&A) section of 10-K and 10-Q forms.

Mayew and Venkatachalam (2012) went a step further and used vocal emotion software to find negative or positive effects for future financial results explained by analysis of conference calls. That is, managerial vocal signals convey useful information regarding firm's future prospects. They were among the first to measure the "soft" information conveyed by linguistic content.

In terms of accounting performance, firms in a healthy financial situation are less likely to disclose information using negative or uncertain words. That is, tone is not only correlated with future firm performance but also with firms' current financial situation (Li, 2010). Consistent with this idea, firms willing to issue positive signals to the market will implement managerial actions to improve their current financial situation to back up their claims. Loughran and McDonald (2011b) suggest that certain words can signal potential fraud, excess return or higher volatility.

Loughran and McDonald (2011a) have created a dictionary of words with a negative meaning in financial reports and find a negative relationship between the presence of these words in 10-K forms and firms' returns. These authors created six dictionaries (negative, positive, uncertainty, litigious, strong modal and weak modal verbs) that have been widely used in analyzing the influence of tone in the corporate setting from a financial economic perspective (e.g., Dougal et al., 2012; Mayew & Venkatachalam, 2012; Chen et al., 2014; Bajo & Raimondo, 2017; González et al., 2019).² Considering the relevance of tone sentiment in firms' information disclosure, we posit the following hypothesis:

Hypothesis 2. Higher positiveness (uncertainty) in the tone of corporate communications is positively (negatively) related to firm valuation and accounting performance in Latin America.

This paper differs from previous work because it uses not only information on the firm's web site but also that in other sources commonly used by investors, such as firms' annual reports, regulatory bodies' reports, and other public information channels. Using all these information sources together with a six-year panel and a full set of control variables, and considering the potential endogeneity of our dependent variables, we were able to construct a comprehensive IDI for our econometric analysis.

We also go one step further and analyze not only the amount of information disclosed but its meaning and subsequent effect on a firm's current and future performance. To the best of our knowledge, this is

²The advantages of these dictionaries are discussed in Loughran and McDonald (2015), and an extended review for this kind of study can be found in Loughran and McDonald (2016).

Table 1
Number sample firms by year and industry sector.

Industrial sector/country	Argentina	Brazil	Chile	Colombia	Mexico	Peru	Total	Percentage
2010–2015								
Financial services	7	8	12	9	10	8	54	11.9%
Agriculture, hunting, livestock, and fisheries	2	1	6	1	0	0	10	2.2%
Fishing	0	0	4	0	0	1	5	1.1%
Mining	3	5	5	3	4	13	33	7.3%
Manufacturing industries	15	34	29	10	28	21	137	30.2%
Electric, gas and sanitary services	7	10	20	5	0	5	47	10.4%
Construction	1	6	4	3	9	5	28	6.2%
Commerce	2	10	7	2	7	2	30	6.6%
Hotels and restaurants	0	0	1	0	5	0	6	1.3%
Transportation and communications	5	8	12	3	12	2	42	9.3%
Investment firms (investment vehicles)	3	5	18	5	3	6	40	8.8%
Real estate	0	0	4	0	0	0	4	0.9%
Education	0	1	0	0	0	0	1	0.2%
Social and health services	0	1	4	0	2	0	7	1.5%
Other social and community services activities	1	0	6	0	3	0	10	2.2%
Total	46	89	132	41	83	63	454	100.0%
Percentage distribution	10.1%	19.6%	29.1%	9.0%	18.3%	13.9%	100.0%	

the first attempt to measure the relationship between textual sentiment in corporate information and firm valuation and performance in a language other than English.

3. Methodology

3.1. Sample and information disclosure index (IDI)

For our sample of firms, we downloaded 4,622 reports from their web pages for the years 2010–15 and also used other information sources, such as the capital market regulatory bodies in each country. Table 1 shows the number of firms in our sample by country and industry sector.

Our final sample is composed of 454 firms distributed in the six largest Latin American countries: 10% in Argentina, 20% in Brazil, 29% in Chile, 9% in Colombia, 18% in Mexico, and 14% in Peru. According to the International Monetary Fund,³ these six countries account for 84% of the total gross domestic product in purchasing power parity in the 32 Latin American and Caribbean countries.

In terms of industry sectors, manufacturing represents 30% of the firms in the sample, followed by financial service with 12% and utilities with 10% of the total sample. We use the information in the reports to answer fifty yes/no questions (see Appendix 1) divided into nine sections as follows: board of directors, executive summary, firm information, corporate governance, corporate social responsibility, financials, risk management, social dimension, and relations with other stakeholders. For each firm, we construct an IDI following the guidelines provided by the OECD and CAF (a Latin American development bank), and by the Colombian code of good governance practices for listed firms (Código País) and closed firms (Guía de Gobierno Corporativo para Sociedades Cerradas y de Familia).⁴

Each positive answer adds 1 point to the IDI for each firm and each year; therefore, we are assuming that the weight for each question is the same (we later relaxed this assumption using a factor analysis approach). Therefore, the maximum score is 50 (50/50 or 100% in relative terms) and the minimum is 0 (0/50 or 0% in relative terms). We report all results in relative terms. This methodology for the construction of the IDI is widely used in the corporate governance literature. For example, Gompers et al. (2003) construct a Governance Index to proxy

for the level of shareholder rights at about 1500 large firms during the 1990s. The index construction is straightforward. For every firm, they add one point for every provision that restricts shareholder rights (increases managerial power). Black, De Carvalho, and Gorga (2012) built their own Brazil Corporate Governance Index composed of six sub-indices, which in turn reflect 41 firm attributes that are often believed to correspond to good governance. In this index, elements are dichotomous (coded as 1 if a firm has the attribute, and 0 otherwise). Ararat, Black, and Yurtoglu (2017) follow the same methodology to build a Turkey Corporate Governance Index, along with other papers that apply the same methodology to measure governance practices (Balasubramanian, Black, & Khanna, 2010, for India; and Black, Jang, & Kim, 2006, for Korea). Recently, Briano-Turrent and Poletti-Hughes (2017) apply the same methodology when building a Corporate Governance Transparency Index composed of 30 items to analyze practices at Latin American family firms in Argentina, Brazil, Chile and Mexico during the period 2004–10. These authors assess whether the company complies with each of the 30 items of the index and add one point when compliance is determined. Hence, we are following a standard and widely used methodology in the corporate governance literature.

It is important to emphasize that although company reports are the main source of information, we complemented these with other information channels. Constructing the IDI using only the firms' annual report yields approximately 80% of all information disclosed (see Table 2). This fact reflects the relevance of these reports.

From Table 2, it is clear that the annual reports of the majority of firms offer an executive summary that covers the main facts and issues (0.91 and 0.916 in Panels A and B for year 2015, respectively). The second section in level of disclosure is the financials, where the company shows its financial statements, ratios, budget execution, and its stock performance (0.813 and 0.909 in Panel A and B for year 2015, respectively). Note that the sections related to corporate governance (0.26 and 0.502 in Panels A and B for year 2015, respectively) and the board of directors (0.431 and 0.497 in Panel A and B for year 2015, respectively) show a low average. This is not unusual in Latin America, a region where low levels of information disclosure and investor protection prevail (Chong & López-de-Silanes, 2007).

In Table 3, Panel A shows the IDI classified by the stock market liquidity for each firm. As expected, the higher the stock liquidity, the greater the IDI (0.573 for low market liquidity firms' stocks in comparison to 0.698 for high market liquidity firms' stocks in 2015, in the IDI from all information channels). In our sample, 73.8% of firms are represented in the low liquidity subsample (335 of 454 sample firms). In addition, Table 3, Panel B, shows that the identity of the controlling shareholder also influences the IDI. In our sample the controlling

³ Report for Selected Countries and Subjects. *World Economic Outlook Database*, October 2017.

⁴ This index methodology was developed at the Center of Corporate Governance Studies (CEGC by its Spanish acronym) at CESA by Trujillo and Guzman (2015).

Table 2
Average IDI for the Latin American sample firms by different dimensions.

Panel A: IDI from firms' annual reports		IDI						Differences
IDI dimensions		2010	2011	2012	2013	2014	2015	2015–2010
1	Board of directors	0.380	0.392	0.400	0.403	0.417	0.431	0.050
2	Executive summary	0.899	0.904	0.908	0.909	0.909	0.910	0.010
3	Company information	0.471	0.484	0.498	0.498	0.499	0.502	0.031
4	Corporate governance	0.221	0.227	0.241	0.252	0.259	0.260	0.040
5	Corporate social responsibility	0.398	0.411	0.420	0.428	0.426	0.433	0.035
6	Financials	0.798	0.803	0.805	0.811	0.814	0.813	0.015
7	Risk management	0.578	0.581	0.587	0.598	0.638	0.638	0.060
8	Social dimension	0.270	0.283	0.294	0.303	0.306	0.306	0.036
9	Responsibility for other stakeholders	0.596	0.612	0.618	0.618	0.617	0.620	0.024
	Total	0.459	0.469	0.478	0.484	0.491	0.495	0.035
	Number of firms	454						

Panel B: IDI from all information channels		IDI						Differences
IDI dimensions		2010	2011	2012	2013	2014	2015	2015–2010
1	Board of directors	0.439	0.449	0.455	0.472	0.487	0.497	0.058
2	Executive summary	0.904	0.909	0.912	0.915	0.915	0.916	0.012
3	Company information	0.610	0.623	0.633	0.670	0.671	0.673	0.063
4	Corporate governance	0.417	0.422	0.437	0.508	0.504	0.502	0.086
5	Corporate social responsibility	0.491	0.507	0.508	0.544	0.553	0.560	0.069
6	Financials	0.891	0.897	0.904	0.906	0.909	0.909	0.019
7	Risk management	0.658	0.661	0.669	0.678	0.706	0.703	0.045
8	Social dimension	0.303	0.313	0.327	0.334	0.343	0.345	0.042
9	Responsibility for other stakeholders	0.649	0.664	0.669	0.691	0.693	0.694	0.044
	Total	0.553	0.562	0.571	0.597	0.604	0.606	0.053
	Number of firms	454						

Table 3
Average IDI for the Latin American sample firms by the stock market liquidity and the controlling shareholder identity.

Panel A	IDI from firms' annual reports						IDI from all information channels					
Stock market liquidity	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
Low												
Number of firms	335	335	335	335	335	335	335	335	335	335	335	335
IDI	0.440	0.444	0.452	0.454	0.461	0.463	0.531	0.535	0.542	0.565	0.572	0.573
High												
Number of firms	119	119	119	119	119	119	119	119	119	119	119	119
IDI	0.514	0.540	0.553	0.569	0.575	0.584	0.613	0.637	0.651	0.687	0.692	0.698
Total	0.459	0.469	0.478	0.484	0.491	0.495	0.553	0.562	0.571	0.597	0.604	0.606
Number of firms	454	454	454	454	454	454	454	454	454	454	454	454

Panel B	IDI from firms' annual reports						IDI from all information channels					
Controlling shareholder identity	2010	2011	2012	2013	2014	2015	2010	2011	2012	2013	2014	2015
State												
Number of firms	23	23	23	23	23	23	23	23	23	23	23	23
IDI	0.474	0.519	0.554	0.562	0.586	0.590	0.543	0.588	0.617	0.661	0.670	0.672
Banks												
Number of firms	26	26	26	26	26	26	26	26	26	26	26	26
IDI	0.376	0.384	0.393	0.410	0.432	0.435	0.483	0.481	0.486	0.534	0.548	0.551
Pension funds and other institutional investors												
Number of firms	153	153	153	153	153	153	153	153	153	153	153	153
IDI	0.467	0.482	0.490	0.494	0.501	0.506	0.550	0.565	0.574	0.600	0.609	0.612
Domestic firms												
Number of firms	128	128	128	128	128	128	128	128	128	128	128	128
IDI	0.466	0.465	0.476	0.480	0.481	0.483	0.564	0.562	0.571	0.590	0.593	0.597
Multinational firms												
Number of firms	76	76	76	76	76	76	76	76	76	76	76	76
IDI	0.464	0.476	0.475	0.488	0.489	0.492	0.558	0.571	0.572	0.603	0.605	0.605
Families or family firms												
Number of firms	48	48	48	48	48	48	48	48	48	48	48	48
IDI	0.446	0.450	0.461	0.460	0.477	0.479	0.566	0.571	0.582	0.600	0.610	0.612
Total	0.459	0.469	0.478	0.484	0.491	0.495	0.553	0.562	0.571	0.597	0.604	0.606
Number of firms	454	454	454	454	454	454	454	454	454	454	454	454

Table 4
Top fifteen most frequent words by country.

Panel A: Top fifteen most frequent uncertain, weak modals and negative words per country											
Argentina	Brazil		Chile	Colombia		Mexico		Peru			
Compromiso	7.09%	Redução	10.67%	Compromiso	7.67%	Cierre	6.71%	Compromiso	9.91%	Compromiso	7.05%
Aproximadamente	4.49%	Resultado	8.91%	Desafios	5.18%	Compromiso	5.84%	Cierre	5.62%	Cierre	5.24%
Cambio	4.23%	Desafios	5.80%	Cambio	3.51%	Disminución	5.02%	Reducción	4.88%	Reducción	4.49%
Poder	3.77%	Aproximadamente	3.52%	Embargo	2.99%	Diferentes	4.88%	Cambio	4.48%	Embargo	3.95%
Desafios	2.80%	Crise	3.32%	Disminución	2.97%	Cambio	4.04%	Diferentes	3.70%	Cambio	3.71%
Crisis	2.60%	Possível	3.32%	Pérdida	2.89%	Riesgos	3.63%	Disminución	3.11%	Crisis	3.37%
Pérdida	2.54%	Revisão	2.38%	Cierre	2.57%	Reducción	3.59%	Embargo	2.71%	Riesgo	3.37%
Casi	2.15%	Desafiador	2.28%	Desafo	2.35%	Riesgo	2.79%	Reducir	2.52%	Disminución	3.03%
Cierre	2.08%	Riscos	2.28%	Posible	2.28%	Crisis	1.87%	Casi	2.32%	Diferentes	2.79%
Déficit	2.02%	Dificuldades	2.18%	Crisis	2.18%	Posible	1.85%	Aprovechar	2.28%	Riesgos	2.42%
Privado	1.95%	Abaixo	1.97%	Duda	2.06%	Transformación	1.83%	Volatilidad	2.16%	Aproximadamente	2.25%
Reducción	1.89%	Incertezas	1.97%	Riesgo	1.97%	Embargo	1.76%	Posible	2.12%	Reducir	2.04%
Diferentes	1.82%	Risco	1.55%	Reducción	1.72%	Pérdida	1.74%	Duda	1.97%	Posible	1.70%
Embargo	1.82%	Poder	1.45%	Diferentes	1.70%	Inferior	1.56%	Aproximadamente	1.93%	Incertidumbre	1.67%
Posible	1.76%	Varição	1.45%	Casi	1.58%	Revelación	1.43%	Transformación	1.81%	Casi	1.57%
Total	43.01%		53.06%		43.62%		48.54%		51.51%		48.64%

Panel B: Top fifteen most frequent positive words per country											
Argentina	Brazil		Chile	Colombia		Mexico		Peru			
Aumento	4.66%	Maior	8.50%	Aumento	5.21%	Cumplimiento	3.97%	Colaboradores	4.87%	Colaboradores	4.86%
Oportunidades	3.45%	Colaboradores	6.34%	Capacidad	4.58%	Éxito	3.79%	Capacidad	4.47%	Mejor	4.46%
Mejor	3.34%	Eficiência	5.49%	Mejor	3.80%	Capacidad	3.40%	Mejor	3.94%	Capacidad	4.34%
Cumplimiento	2.68%	Melhor	4.51%	Colaboradores	3.68%	Mejor	3.37%	Oportunidades	3.84%	Confianza	3.11%
Ganancia	2.68%	Bem	4.44%	Confianza	2.84%	Aumento	2.93%	Confianza	3.38%	Mejora	2.77%
Mejora	2.63%	Confiança	3.59%	Eficiencia	2.36%	Confianza	2.62%	Efectivo	3.31%	Oportunidades	2.57%
Capacidad	2.58%	Inovação	3.53%	Principal	2.33%	Superior	2.54%	Eficiencia	2.81%	Eficiencia	2.46%
Principal	2.47%	Oportunidades	3.53%	Superior	2.14%	Colaboradores	2.43%	Rentabilidad	2.76%	Aumento	2.32%
Confianza	2.36%	Rentabilidade	3.07%	Innovación	2.04%	Buen	2.35%	Aumento	2.68%	Superior	2.30%
Resolución	2.36%	Alta	2.68%	Permite	1.98%	Oportunidades	2.26%	Lograr	2.03%	Liderazgo	2.21%
Éxito	2.30%	Superior	2.42%	Liderazgo	1.88%	Fortalecimiento	2.15%	Mejora	1.86%	Buen	1.93%
Efectivo	1.92%	Fortalecimiento	2.22%	Rentabilidad	1.78%	Eficiencia	2.10%	Innovación	1.71%	Logrado	1.86%
Alcanzando	1.86%	Melhoria	2.22%	Alcanzar	1.73%	Permite	2.01%	Liderazgo	1.67%	Lograr	1.86%
Alcanzar	1.70%	Apesar	2.09%	Buen	1.72%	Innovación	1.92%	Superior	1.67%	Rentabilidad	1.84%
Lograr	1.64%	Principal	2.03%	Alcanzando	1.68%	Logros	1.92%	Éxito	1.62%	Alcanzar	1.64%
Total	38.63%		56.67%		39.75%		39.75%		42.62%		40.53%

shareholder is represented by pension funds and other institutional investors, domestic firms, multinational firms, families, banks, and the state. The lowest IDI comes from banks (0.551 for year 2015 in the IDI when using all information channels), the highest from firms owned by the state (0.672 for year 2015 in the IDI when using all information channels).

We also analyze the IDI regarding economic activities and countries (not shown in the tables but available upon request). In relation to industrial sectors, we find that investment firms score the lowest on the IDI, which is consistent with the fact that these firms are usually investment vehicles (holding firms) used by families to exert control. Other sectors with low IDI scores are fishing, agriculture, and manufacturing. In contrast, real estate and education run high in terms of the IDI, followed by hotels and restaurants, mining, and utilities.

Now, our goal is twofold. On the one hand, we want to test whether the IDI has any impact on the firms' market value (Tobin's Q) and accounting performance (ROE), along with a more detailed analysis of the relative importance of each of the IDI sections. On the other hand, we include a content analysis approach to test whether the "tone" of the firm's executive summary, particularly the subsection with the president's letter, has any relationship with the firms' Tobin's Q and ROE.

3.2. Tone measures

Following the literature in information retrieval, we use a rule-based classifier to measure tone in the annual reports of our sample of Latin American firms. We use the dictionaries proposed by Loughran

and McDonald (2011a) to measure the frequency of a query in a corpus of files. Loughran & McDonald developed six dictionaries based on 10-K files, which are more appropriate in the financial context than previous dictionaries. The fact that these dictionaries are built on 10-K files makes our analysis better since we are dealing with the equivalent report released in Latin America.

In this work we focus our analysis on four dictionaries categorized in two groups. As suggested by Loughran and McDonald (2013) we combine the negative, uncertain and weak modal dictionaries to create just one (uwn) since the three seem to proxy the same attribute. We also keep the positive dictionary and discard litigious and strong modal verbs. The litigious dictionary concerns suits by shareholders disappointed with firm performance (Ibbotson & Jaffe, 1975). Since our interest is performance and not probability of being sued, we discard this dictionary. Examples of strong modal words are "always", "best", "must", and "highest". These words usually express necessity, which is not part of the analysis.

Considering that the annual reports in Latin America are written in Spanish and Portuguese, we first translate the financial dictionaries from English. Taking into account differences in language, we decided to use the best three translations given by a language translator. We merged the translated words, deleted repeated words, and eliminated those becoming in sentences after translation by looking for the best synonym. For example, the word "almost" can be translated in Portuguese as "por pouco", "pouco menos", or "quase". In this case we ignore the first two and keep the last one.

In order to validate the translations, we take a sample of financial

news from Bloomberg in their English, Spanish and Portuguese versions. We use the uwn dictionary to score the files with the equivalent dictionaries. We find a correlation of 0.82, 0.65, and 0.7 between the uncertainty, weak modal, and negative measures, respectively. When combined in a single dictionary, we find a correlation of 0.7. We are confident that the translation of the original dictionary is not significantly affecting the scoring of files. To the best of our knowledge, this is the first attempt to build a financial dictionary in Spanish and Portuguese.

To score the files we proceed as follows: we first focus on the subsection of the annual report labeled “president’s letter”. We argue that this subsection is used by management to reveal past information and future expectations about the firm through tone. We also use this subsection because it is found in most of the files in our sample and is usually placed at the beginning of the report, which makes it likely to be read by shareholders and future investors. Following [Loughran and McDonald \(2011a\)](#) we then mine the text, creating a corpus of files and removing undesirable characters, such as punctuations, numbers, and stop words, as is common in the information retrieval literature. We also transform letters to lowercase and remove white spaces, again common in this type of procedure. We create a document-term matrix, controlling by our two dictionaries (uwn and positive), focusing our attention on the most common words, and removing infrequent terms.

Panel A in [Table 4](#) shows the top fifteen most frequent distribution of uwn words per country. As is common in textual analysis, we observed an uneven distribution of words in all countries. In Brazil, for example, of the 143 words classified by the uwn dictionary, the first fifteen account for 53.06% of the total count. Similar results are obtained in Mexico, where the first fifteen words account for 51.51% of the total count. In Peru, Colombia, Argentina and Chile the results are 48.64, 48.54, 43.01 and 43.62%, respectively. In four of the five Spanish-speaking countries, the most frequent uwn word is “compromiso”. The average relative frequency of this word in these countries is 7.93%.

Another repeated word in Spanish is “cierre”. In Colombia this word accounts for 6.71% of the total count, the highest in the sample. This word is also common in Mexico and Peru, scored at 5.62 and 5.24%, respectively. The most frequent uwn word in the Brazilian president’s letters is “redução”, accounting for 10.67%. Although this word is also present in the letters of Spanish-speaking countries, the average is just 3.31%. Weak modal verbs seem not to be as frequent as reported in previous works (see [Loughran & McDonald, 2011a](#)). Words like “possible”, “casi”, “poder”, “aproximadamente”, and “quase”, among others, occur at lower frequencies. This is understood as natural in the section we analyze. The president’s letter aims to convey precise information about past, present and future expectations; hence, these words are not as common here as in other sections.

In Panel B of [Table 4](#) we analyze the fifteen most frequent positive words per country. As stated, we argue that the president’s letter conveys managers’ sentiments concerning their firms. The most repeated positive word in Chile and Argentina is “aumento”, with a frequency of 5.21 and 4.66%, respectively. This word is also present in the other four Spanish-speaking countries but with a lower frequency. The word “colaboradores” is present in all of the countries except Argentina.

Words related to financial performance are present but not as one might expect. Of the fifteen most frequent positive words, “ganancia” is observed only in Argentina. The word “rentabilidad/rentabilidade” accounts for 2.36% on average. Another particular case is the word “éxito”, with the second highest frequency in Colombia, 3.79%. This word is present in the president’s letter but it seems to be used with caution by managers.

Once we have constructed the document-term matrix for uwn and positive lists, we proceed to score each firm. The scoring mechanism $score_i^{tf.idf}$ of document i , is mainly the sum of tf-idf weight of terms (queries) in document j over the total number of words in the document.

$$score_i^{tf.idf} = \frac{1}{(1 + \log a_i)} \sum_{j=1}^J w_{ij}^{tf.idf}$$

where:

a = Total number of words in document i

$w_{ij}^{tf.idf}$ = Weight of each term in document

J = Total number of words (uwn, positive) in the lexicon

The weight for each term is assigned depending on the number of occurrences of term i in document j (tf) times the inverse document frequency, which measures the number of documents in a corpus containing a term i ([Manning, Raghavan, & Schütze, 2008](#)). Our analysis uses a “bag of words” method, where the order of terms in a document does not matter but their presence and frequency do. Our documents become a vector of words that are then transformed into a document-term matrix. Despite this assumption, the classifier has worked well when tested in other models ([Manning et al., 2008](#)).

3.3. Performance measures and control variables

All the financial variables (in dollars) were extracted from Bloomberg for the period 2005–15 in order to estimate financial performance volatilities. Tobin’s Q is widely used in the literature on corporate finance and governance and is intended to estimate the market expectation of a firm’s future return. Given the low liquidity of some firms in our sample, we also use book value return on equity (ROE).

We further use the return on assets (ROA) to test the robustness of our results. Tobin’s Q, ROE, and ROA were industry-adjusted by using the International Standard Industrial Classification (ISIC). The adjustment was done by subtracting for each firm-year return the industry average return for that year. Following the literature, we include the following as control variables for financial and firm characteristics: total debt ratio, firm size, dividends ratio (over assets and over sales), dividend’s dummy, growth (assets, sales, and profits), volatility, identification of the major shareholder, industry and country dummies. In addition, listing requirements is an index calculated as the ratio of each country’s requirements on a total of 52 listing requirements identified for the Latin American region (see [Appendix 2](#)). Mexico is the country with the highest number of listing requirements (26), followed by Argentina (22), Brazil (20), Chile (17), Peru (16) and Colombia (13). Hence, this variable has a minimum of 25% and a maximum of 50%. We show all variables used in the study in [Appendix 3](#).

3.4. Summary statistics

In [Table 5](#) we show the average values, median and standard deviation for our variables. The average IDI obtained from company annual reports is 47.9%, which increases to 58.2% when we use all information channels. We also report the different sections of the IDI from all information channels, showing that the executive summary (91.2%) and the financials sections (90.3%) get the highest scores; the lowest scores are given by the social, corporate governance, and board of directors dimensions, with average scores of 32.7, 46.5, and 46.7%, respectively.

Table 5
Summary statistics.

Variables	Observ.	Mean	Median	Standard deviation
Information disclosure indexes (IDI)				
IDI from firms' annual reports	2724	0.479	0.480	0.164
IDI from all information channels	2724	0.582	0.600	0.158
IDI from all information channels - board of directors	2724	0.467	0.500	0.210
IDI from all information channels - executive summary	2724	0.912	1.000	0.185
IDI from all information channels - company information	2724	0.647	0.710	0.246
IDI from all information channels - corporate governance	2724	0.465	0.500	0.236
IDI from all information channels - corporate social responsibility	2724	0.527	0.600	0.371
IDI from all information channels - financials	2724	0.903	1.000	0.167
IDI from all information channels - risk management	2724	0.679	0.670	0.324
IDI from all information channels - social dimension	2724	0.327	0.290	0.297
IDI from all information channels - responsibility for other stakeholders	2724	0.677	0.670	0.355
Tone measures				
Uwn words frequency	2724	0.030	0.029	0.016
Positive words frequency	2724	0.050	0.049	0.020
Financial performance				
Tobin's Q	4067	1.423	1.149	1.423
ROE - return on equity	3446	0.103	0.088	0.297
Market capitalization (USD millions)	3906	4708.24	421.05	61,971.67
ROA - return on assets	4433	0.047	0.040	0.106
Profit dummy	4508	0.825	1.000	0.380
Control variables				
Leverage	4505	0.229	0.216	0.181
Firm size	4510	14,754.07	655.62	124,740.70
Dividend payout (assets)	3887	0.033	0.012	0.117
Dividend payout (sales)	3862	0.475	0.024	10.151
Dividend dummy	3887	0.781	1.000	0.414
Growth (assets)	4054	0.067	0.044	0.398
Growth (sales)	4005	0.055	0.076	0.578
Growth (EBIT)	3289	0.062	0.080	0.782
Listing requirements index	4994	0.370	0.327	0.076
Volatility	3475	0.382	0.025	7.596
Controlling shareholder identity dummies				
State	4994	0.051	0.000	0.219
Banks	4994	0.057	0.000	0.232
Pension funds and other institutional investors	4994	0.338	0.000	0.473
Domestic firms	4994	0.281	0.000	0.450
Multinational firms	4994	0.167	0.000	0.373
Families or family firms	4994	0.106	0.000	0.308

Regarding tone measures, the average uncertain, weak modals and negative words (uwn) measure for the total sample is 0.03. Statistics by country for this variable reveals that the highest average scores are for Chile and Argentina (not shown but available upon request). In addition, the average positive words measure is 0.05 for the entire sample, and statistics by country for this variable reveal that the highest average scores are for Mexico and Peru (not shown but available upon request).

In relation to financial metrics, the average Tobin's Q is 1.423 (median 1.149), which indicates market values higher than book values, on average, for firms in our sample. In terms of the ROE and ROA, the average values in our sample are 10.3 and 4.7%, respectively. The average capitalization of the firms in our sample is 4708 million dollars, and 82.5% of the firms report positive net earnings.

In terms of our control variables, the average debt-to-asset ratio is 22.9%, the dividend payout is 3.3% of total assets, and close to 80% of the firms in our sample pay dividends. The firms' growth of assets is, on average, 6.7%, and their sales growth averages 5.5%. In addition, listing requirements show an average of 0.37, which implies that firms in Latin America have to conform with an average of 19 of the 52 listing requirements we were able to identify in the region. Table 5 also shows that 33.8% of the firms have a pension fund or some other institutional investor as the main shareholder; 28.1% are controlled directly by other

domestic firms; 16.7% by a multinational company, 10.6% by a family. Banks and the state control 5.7 and 5.1% of the firms, respectively. These percentages together with the low incidence of family firms as direct controlling shareholders are evidence of pyramidal ownership structures, which are common in the region.

4. Results

We run a panel data regression model with random effects estimated by Feasible Generalized Least Squares (FGLS). Specifically, we estimate the following regression model:

$$Y_{it} = \alpha + \beta'_k \mathbf{IDI}_{it} + \gamma'_k \mathbf{TA}_{it} + \delta'_k \mathbf{CV}_{it} + \varphi'_k \mathbf{IND}_{it} + \phi'_k \mathbf{MSI}_{it} + \psi'_k \mathbf{YEAR}_t + (\mu_i + \varepsilon_{it})$$

where Y_{it} is the financial performance variable (Tobin's Q or ROE); \mathbf{IDI}_{it} is the vector of disclosure index metrics; \mathbf{TA}_{it} is the vector of textual analysis measures; \mathbf{CV}_{it} is the vector of control variables, including financial and firm's characteristics; \mathbf{IND}_{it} is the vector of industry dummies; \mathbf{MSI}_{it} is the vector that identifies the major shareholder; and \mathbf{YEAR}_t is the vector of year dummies.

In Table 6 we show the regression results using the Tobin's Q as our

Table 6
Regressions using Tobin's Q as dependent variable.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
IDI from firms' annual reports	0.4315*** (0.037)	0.4228*** (0.038)				
IDI from all information channels			0.4698*** (0.041)	0.4455*** (0.041)		
IDI from all information channels about corporate governance, corporate social responsibility and social dimension					0.1837*** (0.028)	0.1820*** (0.028)
IDI from all information channels about company information, executive summary and financials					-0.1181*** (0.044)	-0.1154** (0.045)
IDI from all information channels about board of directors, risk management and responsibility for other stakeholders					0.3242*** (0.035)	0.2961*** (0.036)
Positive words frequency		1.3063*** (0.280)		1.0924*** (0.271)		1.0024*** (0.276)
Uwn words frequency		-1.8477*** (0.414)		-1.5939*** (0.411)		-1.2203*** (0.417)
Leverage	0.1975*** (0.037)	0.1905*** (0.040)	0.1923*** (0.035)	0.1962*** (0.038)	0.1666*** (0.036)	0.1591*** (0.039)
Dividend payout (assets)	8.5896*** (0.153)	8.4514*** (0.165)	8.4179*** (0.154)	8.3800*** (0.161)	8.0213*** (0.186)	8.0492*** (0.192)
Firm size	0.0143 (0.018)	0.0294 (0.019)	0.0181 (0.017)	0.0273 (0.018)	0.0332* (0.018)	0.0426** (0.018)
Firm size ²	0.0002 (0.001)	-0.0011 (0.001)	-0.0003 (0.001)	-0.0010 (0.001)	-0.0014 (0.001)	-0.0021* (0.001)
Growth (sales)	0.0888*** (0.012)	0.0956*** (0.012)	0.0948*** (0.012)	0.0988*** (0.012)	0.0985*** (0.013)	0.1004*** (0.012)
Volatility	-0.0004 (0.001)	-0.0005 (0.001)	-0.0005 (0.001)	-0.0006 (0.001)	-0.0006 (0.001)	-0.0005 (0.001)
Listing requirements	1.3791*** (0.088)	1.4115*** (0.091)	1.2425*** (0.088)	1.2603*** (0.091)	1.1727*** (0.089)	1.2540*** (0.094)
Constant	0.0546 (0.077)	-0.0268 (0.081)	0.0498 (0.075)	0.0125 (0.078)	0.1220 (0.077)	0.0559 (0.082)
Regression	FGLS	FGLS	FGLS	FGLS	FGLS	FGLS
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industrial sector dummies	Yes	Yes	Yes	Yes	Yes	Yes
Controlling shareholder identity dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1912	1912	1912	1912	1912	1912
Wald test	382.3 [0.000]	391.29 [0.000]	382.68 [0.000]	391.88 [0.000]	381.92 [0.000]	391.09 [0.000]
R ² overall	0.3043	0.3062	0.3036	0.3049	0.3043	0.3056
Number of firms	395	395	395	395	395	395
Specification tests for random effects						
Lagrange multiplier test for RE	861.63 [0.000]	860.62 [0.000]	867.78 [0.000]	868.81 [0.000]	860.76 [0.000]	862.38 [0.000]
Hausman specification test	538.54 [0.000]	547.49 [0.000]	526.94 [0.000]	528.51 [0.000]	547.74 [0.000]	547.75 [0.000]

Note: Robust standard errors are in parentheses, *p* values are in brackets; ****p* < 0.01, ***p* < 0.05, **p* < 0.1; FGLS: Feasible Generalized Least Squares.

dependent variable. The IDI obtained through company annual reports is positive and statistically significant at the 1% confidence level (columns 1 and 2), which indicates that information disclosed through annual reports positively impacts the market perception of firms' value (Tobin's Q). When the IDI is measured by using all information channels, we obtain similar results not only in terms of statistical significance but also in terms of the size of the coefficients (columns 3 and 4).

The sections of the IDI were clustered in three groups with principal component analysis: 1) corporate governance, corporate social responsibility, and social dimension; 2) company information, executive summary, and financials; and 3) board of directors, risk management, and responsibility to other stakeholders. The results in columns 5 and 6 show that the third component has the highest positive impact, which suggests that the market highly values (through the firm's Tobin's Q) information disclosure regarding these factors (board of directors, risk management policies and the firm's responsibility to other stakeholders). The first component also shows a positive and statistically

significant impact at the 1% level, but with a smaller coefficient (0.1837 versus 0.3242, in column 5). This supports our first hypothesis; that is, higher information disclosure is positively related to firm valuation in our sample of Latin America firms. In addition, the second component (company information, executive summary and financials) shows a negative and statistically significant impact on firms' valuation.

Overall, results in Table 6 show a positive relationship between information disclosure and firm valuation. However, results in column 5 and 6 for the second component of the IDI suggest that greater disclosure of financial aspects is related to more conservative market valuations. This shows that investors with more financial information could have a better estimate of a firm's prospects.

Regarding our second hypothesis, regressions in the even columns in Table 6 include the two variables measuring tone (frequency of positive and uwn modal words). The coefficient for positiveness in tone is positive and significant in the three models. This result coincides with Feldman et al. (2010), who find higher returns in the stock market with

Table 7
Regressions using ROE as dependent variable.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	ROE	ROE	ROE	ROE	ROE	ROE
IDI from firms' annual reports	0.0180*** (0.006)	0.0183*** (0.006)				
IDI from all information channels			0.0298*** (0.007)	0.0285*** (0.007)		
IDI from all information channels about corporate governance, corporate social responsibility and social dimension					0.0297*** (0.005)	0.0240*** (0.005)
IDI from all information channels about company information, executive summary and financials					−0.0329*** (0.007)	−0.0254*** (0.007)
IDI from all information channels about board of directors, risk management and responsibility for other stakeholders					0.0159*** (0.005)	0.0107** (0.005)
Positive words frequency		0.2908*** (0.045)		0.2719*** (0.045)		0.1057*** (0.038)
Uwn words frequency		−0.4255*** (0.068)		−0.3910*** (0.069)		−0.4135*** (0.066)
Leverage	−0.1559*** (0.007)	−0.1492*** (0.007)	−0.1571*** (0.008)	−0.1545*** (0.007)	−0.1664*** (0.006)	−0.1699*** (0.007)
Dividend payout (assets)	1.1253*** (0.032)	1.1289*** (0.032)	1.1271*** (0.033)	1.1194*** (0.032)	1.0548*** (0.030)	1.0933*** (0.032)
Firm size	0.0269*** (0.002)	0.0260*** (0.001)	0.0259*** (0.001)	0.0248*** (0.001)	0.0243*** (0.002)	0.0264*** (0.002)
Firm size ²	−0.0016*** (0.000)	−0.0017*** (0.000)	−0.0016*** (0.000)	−0.0015*** (0.000)	−0.0015*** (0.000)	−0.0016*** (0.000)
Growth (sales)	0.0494*** (0.004)	0.0454*** (0.004)	0.0468*** (0.005)	0.0456*** (0.004)	0.0463*** (0.004)	0.0415*** (0.004)
Volatility	−0.0040*** (0.000)	−0.0039*** (0.000)	−0.0040*** (0.000)	−0.0040*** (0.000)	−0.0039*** (0.000)	−0.0038*** (0.000)
Listing requirements	0.1633*** (0.025)	0.2011*** (0.026)	0.1711*** (0.026)	0.1880*** (0.029)	0.1056*** (0.012)	0.1076*** (0.012)
Constant	−0.0800*** (0.013)	−0.0912*** (0.012)	−0.0874*** (0.013)	−0.0896*** (0.013)	−0.0477*** (0.012)	−0.0518*** (0.013)
Regression	FGLS	FGLS	FGLS	FGLS	FGLS	FGLS
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industrial sector dummies	Yes	Yes	Yes	Yes	Yes	Yes
Controlling shareholder identity dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1834	1834	1834	1834	1834	1834
Wald test	784.91 [0.000]	793.2 [0.000]	790.49 [0.000]	798.41 [0.000]	795.06 [0.000]	802.79 [0.000]
R ² overall	0.3735	0.3754	0.3751	0.3768	0.3752	0.3765
Number of firms	406	406	406	406	406	406
Specification tests for random effects						
Lagrange multiplier test for RE	120.18 [0.000]	119.16 [0.000]	119.74 [0.000]	119.09 [0.000]	159.22 [0.000]	154.55 [0.000]
Hausman specification test	437.15 [0.000]	667.53 [0.000]	423.03 [0.000]	585.06 [0.000]	573.79 [0.000]	888.59 [0.000]

Note: Robust standard errors are in parentheses, p values are in brackets; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; FGLS: Feasible Generalized Least Squares.

changes in positive tone in the management discussion and analysis (MD&A) section of 10-K and 10-Q filings. Similar results using the Loughran and McDonald (2011a) word list have been associated with higher returns and newspaper articles and investor capital inflows (Solomon, Soltes, & Sosyura, 2014) as well as a positive tone in conference calls (Mayew & Venkatachalam, 2012). Hence, our results suggest that in the Latin American context the market gives credibility to positive messages from CEOs. Conversely, uncertainty in tone has a negative and statistically significant impact on Tobin's Q. This suggests that the market anticipates problems for firms whose managers use a negative tone in the annual letter summarizing the firm's situation.

Control variables behave as expected. The listing requirements index, which aggregates mandatory disclosure, shows a positive and significant coefficient at the 1% level. In addition, other financial controls, such as leverage, dividends and growth opportunities display a positive and significant impact on firms' market value. In the case of

firm size, model 6 in Table 6 suggests a positive and non-monotonic relationship with firm valuation.

In Table 7 we show the same set of regression equations but use the firm's ROE as the dependent variable (firm performance). Results are generally the same as for Tobin's Q and show a positive relation between ROE and IDI, which supports our first hypothesis. Again, when the IDI was clustered by using principal component analysis, the first and third components containing information about corporate governance, corporate social responsibility, the social dimension, the board of directors, risk management, and responsibility to other stakeholders show positive and statistically significant impacts on firm performance at the 1 and 5% levels.

When analyzing the second component, the higher the level of information disclosure related to the group concerned with company information, executive summary, and financials, the lower the ROE. This suggests a more conservative approach and fewer opportunities to

Table 8

Robustness regressions. All regressions include a constant as well as the following control variables: leverage, dividend payout (assets), firm size and square of firm size, growth (sales), volatility of operating profits, listing requirements, year dummies, controlling shareholder identity dummies, and industry dummies for each of the industries listed in Table 1. Variables are defined in Appendix 3.

Panel A	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
Lagged IDI from firms' annual reports	0.4207*** (0.039)	0.4270*** (0.040)				
Lagged IDI from all information channels			0.4566*** (0.044)	0.4568*** (0.044)		
Lagged IDI from all information channels about corporate governance, corporate social responsibility and social dimension					0.2410*** (0.026)	0.2313*** (0.029)
Lagged IDI from all information channels about company information, executive summary and financials					−0.2000*** (0.042)	−0.1669*** (0.045)
Lagged IDI from all information channels about board of directors, risk management and responsibility for other stakeholders					0.3639*** (0.035)	0.3434*** (0.036)
Lagged positive words frequency		1.1208*** (0.231)		0.8352*** (0.253)		0.7124*** (0.243)
Lagged uwn words frequency		−2.1591*** (0.327)		−1.7371*** (0.382)		−1.2503*** (0.384)
Regression	FGLS	FGLS	FGLS	FGLS	FGLS	FGLS
Observations	1602	1602	1602	1602	1602	1602
Wald test	220.53 [0.000]	224.26 [0.000]	220.15 [0.000]	224.27 [0.000]	221.37 [0.000]	225.45 [0.000]
R ² overall	0.2617	0.2593	0.2615	0.2588	0.2656	0.2626
Number of firms	389	389	389	389	389	389

Panel B	(1)	(2)	(3)	(4)	(5)	(6)
Variables	ROE	ROE	ROE	ROE	ROE	ROE
Lagged IDI from firms' annual reports	0.0211*** (0.007)	0.0239*** (0.007)				
Lagged IDI from all information channels			0.0211*** (0.006)	0.0177*** (0.006)		
Lagged IDI from all information channels about corporate governance, corporate social responsibility and social dimension					0.0323*** (0.005)	0.0315*** (0.005)
Lagged IDI from all information channels about company information, executive summary and financials					−0.0416*** (0.008)	−0.0396*** (0.008)
Lagged IDI from all information channels about board of directors, risk management and responsibility for other stakeh.					0.0153*** (0.006)	0.0098* (0.006)
Lagged positive words frequency		0.0885*** (0.029)		0.0820*** (0.031)		0.0675** (0.033)
Lagged uwn words frequency		−0.1093* (0.061)		−0.3132*** (0.053)		−0.2632*** (0.060)
Regression	FGLS	FGLS	FGLS	FGLS	FGLS	FGLS
Observations	1563	1563	1563	1563	1563	1563
Wald test	631.19 [0.000]	610.9 [0.000]	607.1 [0.000]	606.96 [0.000]	622.3 [0.000]	622.08 [0.000]
R ² overall	0.3528	0.3476	0.3262	0.3256	0.3286	0.3279
Number of firms	401	401	401	401	401	401

Panel C	(1)	(2)	(3)	(4)	(5)	(6)
Variables	ROA	ROA	ROA	ROA	ROA	ROA
IDI from firms' annual reports	0.0180*** (0.004)	0.0142*** (0.004)				
IDI from all information channels			0.0160*** (0.004)	0.0129*** (0.004)		
IDI from all information channels about corporate governance, corporate social responsibility and social dimension					0.0090*** (0.003)	0.0080** (0.003)
IDI from all information channels about company information, executive summary and financials					−0.0021 (0.005)	−0.0054 (0.005)
IDI from all information channels about board of directors, risk management and responsibility for other stakeholders					0.0086** (0.004)	0.0075* (0.004)
Positive words frequency		0.0966*** (0.028)		0.0937*** (0.028)		0.0609** (0.030)
Uwn words frequency		−0.1700*** (0.046)		−0.1630*** (0.045)		−0.1760*** (0.050)

(continued on next page)

Table 8 (continued)

Panel C	(1)	(2)	(3)	(4)	(5)	(6)
Variables	ROA	ROA	ROA	ROA	ROA	ROA
Regression	FGLS	FGLS	FGLS	FGLS	FGLS	FGLS
Observations	2097	2097	2097	2097	2097	2097
Wald test	917.14	928.24	912.45	923.25	921.24	1050.01
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
R ² overall	0.3715	0.3729	0.3703	0.3716	0.372	0.4145
Number of firms	417	417	417	417	417	417

Note: Robust standard errors are in parentheses, p values are in brackets; *** p < 0.01, ** p < 0.05, * p < 0.1; FGLS: Feasible Generalized Least Squares.

“book or earnings management” when the firm discloses information through this route. That is, more financial disclosure leads to more conservative financial statements and accounting performance measures.

Concerning our second hypothesis, regressions in even columns of Table 7 once again include the tone measures, and show that positiveness in tone is positive and significantly related to ROE, while uncertainty in tone has the opposite effect. In general, we get the same results as those obtained with Tobin's Q.

Results in Table 6 (Tobin's Q) and 7 (ROE), provide empirical support for our hypotheses. That is, information disclosure is positively related to firm valuation and accounting performance in Latin America (H1), and positiveness (uncertainty) in the tone of corporate communications is positively (negatively) related to firm valuation and accounting performance in Latin America (H2).

The regression specification tests consistently reject the null hypothesis of no individual effects, according to the Lagrange multiplier test. In this case, the error component model is assumed as the true specification, where individual effects are fixed or random. The random effects model is chosen because some of the control variables shaping our model are time-invariant dummies.⁵

4.1. Robustness⁶

We perform several changes in the regression model specification, such as regressing our dependent variables using lagged IDI and tone measures yielding similar results; that is, a positive and significant relationship between IDI and firm performance measures and a significant positive (negative) relationship between positiveness (uncertainty) in tone and firm performance measures (see Table 8, Panels A and B). In addition, we use ROA as an alternative firm performance measure, and obtain similar results (see Table 8, Panel C).

Overall, after taking into consideration the controlling shareholder identity, industry and the usual financial controls, we find a statistically significant relation between Tobin's Q and ROE as dependent variables, and the IDI and tone measures for our sample of Latin American firms.

⁵ The null hypothesis in the Hausman test assumes that the random effects model is the true model and that the variance-covariance matrix (VCE) is efficient. Therefore, one cannot reject the null hypothesis that the difference in the regression coefficient is systematic between the fixed versus the random effects specifications. The full specification displayed in regression equations in Tables 6 and 7 failed to pass the Hausman specification test. However, in the presence of heteroskedastic residuals, which is the case, the scope of this test is limited. Instead, what is recommended are related tests based on bootstrapping methods (Cameron & Trivedi, 2010). We run reduced empirical models (not shown) that passed the Hausman test but with high costs in terms of explanatory power. In addition, we try to use the test proposed by Bartolucci, Belotti, and Peracchi (2015) in Stata, but it was not possible because our panel is not strongly balanced. Hence, the random effects model is chosen.

⁶ We thank the Guest Editor, Sergio Olavarrieta, and the anonymous referees for providing specific comments and encouraging us to Strengthen this section of the paper.

That is, investors in Latin America seem to pay attention not only to what firms disclose, but also to the tone they use in their communications to the market. Market participants pay attention to positiveness in CEO letters and messages, and react negatively to uncertainty in tone in corporate communications.

We recognize that our analysis could be affected by endogeneity issues. For example, our analysis could be subject to the omitted variable bias. However, the panel data regression model with random effects estimated by Feasible Generalized Least Squares (FGLS) allows us to partially address this bias by taking into account the random unobserved heterogeneity at firm level. Furthermore, if there is a relevant constant omitted variable correlated with the control variables, a linear combination of the invariant dummies (year, industry and controlling shareholder dummies) in our regressions should tackle this issue.

Another source of endogeneity could be reverse causality. That is, it is difficult to test conclusively whether a higher amount of disclosure affects a firm's Tobin's Q and ROE positively or whether a higher Tobin's Q and ROE lead to more disclosure (Garay et al., 2013). As pointed out by Healy and Palepu (2001), firms with the highest disclosure ratings tend to show better financial performance. According to Garay et al. (2013), this may be caused by a self-selection bias – firms may disclose more information when they are performing well. In the same way, it is difficult to test conclusively whether tone in corporate communications affects a firm's Tobin's Q and ROE, or whether changes in Tobin's Q and ROE lead the firm to use a different tone when reporting to the market. However, we include several control variables with our data that we argue help to mitigate the endogeneity issue.

In addition, and as mentioned above, we obtained similar results when using lagged values of the disclosure index and tone measures. According to Bellemare, Masaki, and Pepinsky (2017), lagged explanatory variables are commonly used in response to endogeneity. Nevertheless, these authors state that lagging explanatory variables as a response to endogeneity moves the channel through which endogeneity biases parameter estimates, supplementing a “selection on observables” assumption with an equally untestable “no dynamics among unobservables” assumption. And although Bellemare et al. (2017) state that their results do not imply that lagged explanatory variables are always and everywhere inappropriate, we then went a step further and performed an instrumental variable (IV) approach to tackle this issue.

Following Garay et al. (2013), we decided to use the American depositary receipt (ADR) dummy variable and the lagged value of the disclosure index as instruments to our independent variable, plus the other exogenous variables included in the instrumented equation. Participation in the ADR market significantly increases the amount of public information available for a given firm, which could affect the firm's willingness to disclose information positively but may not necessarily lead to better Tobin's Q or ROE. For example, higher levels of disclosure could lead to lower firm valuation and accounting financial performance in certain circumstances when market participants lower their expectations about the firm's prospects. In Table 9 we show the results of the IV regressions (even columns) and compare them with the previous results in Tables 6 and 7 (odd columns in Table 9). As seen in Table 9, when we instrumented the IDI from all information channels,

Table 9
Instrumental variables regressions.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q	ROE	ROE	ROE	ROE
IDI from all information channels	0.4698*** (0.041)		0.4455*** (0.041)		0.0298*** (0.007)		0.0285*** (0.007)	
IDI from all information channels - IV		0.4692*** (0.045)		0.4683*** (0.044)		0.0294*** (0.008)		0.0291*** (0.008)
Positive words frequency			1.0924*** (0.271)	1.1139*** (0.267)			0.2719*** (0.045)	0.2477*** (0.046)
Uwn words frequency			-1.5939*** (0.411)	-1.8943*** (0.403)			-0.3910*** (0.069)	-0.4024*** (0.072)
Leverage	0.1923*** (0.035)	0.2428*** (0.033)	0.1962*** (0.038)	0.2200*** (0.035)	-0.1571*** (0.008)	-0.1746*** (0.008)	-0.1545*** (0.007)	-0.1738*** (0.008)
Dividend payout (assets)	8.4179*** (0.154)	7.6168*** (0.222)	8.3800*** (0.161)	7.6369*** (0.224)	1.1271*** (0.033)	1.1025*** (0.035)	1.1194*** (0.032)	1.0956*** (0.035)
Firm size	0.0181 (0.017)	-0.0435** (0.020)	0.0273 (0.018)	-0.0399** (0.020)	0.0259*** (0.001)	0.0279*** (0.002)	0.0248*** (0.001)	0.0264*** (0.001)
Firm size ²	-0.0003 (0.001)	0.0035*** (0.001)	-0.0010 (0.001)	0.0031** (0.001)	-0.0016*** (0.000)	-0.0017*** (0.000)	-0.0015*** (0.000)	-0.0016*** (0.000)
Growth (sales)	0.0948*** (0.012)	0.0917*** (0.012)	0.0988*** (0.012)	0.0965*** (0.012)	0.0468*** (0.005)	0.0460*** (0.005)	0.0456*** (0.004)	0.0455*** (0.005)
Volatility	-0.0005 (0.001)	-0.0007 (0.001)	-0.0006 (0.001)	-0.0008 (0.001)	-0.0040*** (0.000)	-0.0040*** (0.000)	-0.0040*** (0.000)	-0.0040*** (0.000)
Listing requirements	1.2425*** (0.088)	1.5232*** (0.088)	1.2603*** (0.091)	1.5253*** (0.091)	0.1711*** (0.026)	0.1880*** (0.026)	0.1880*** (0.029)	0.2073*** (0.028)
Constant	0.0498 (0.075)	0.1595** (0.075)	0.0125 (0.078)	0.1362* (0.079)	-0.0874*** (0.013)	-0.0945*** (0.014)	-0.0896*** (0.013)	-0.0957*** (0.013)
Regression	FGLS	FGLS	FGLS	FGLS	FGLS	FGLS	FGLS	FGLS
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industrial sector dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controlling shareholder identity dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1912	1602	1912	1602	1834	1563	1834	1563
Wald test	382.68 [0.000]	220.17 [0.000]	391.88 [0.000]	227.39 [0.000]	790.49 [0.000]	630.12 [0.000]	798.41 [0.000]	633.67 [0.000]
R ² overall	0.3036	0.2615	0.3049	0.2641	0.3751	0.3531	0.3768	0.3544
Number of firms	395	389	395	389	406	401	406	401
Specification tests for random effects								
Lagrange multiplier test for RE	867.78 [0.000]	684.73 [0.000]	868.81 [0.000]	682.41 [0.000]	119.74 [0.000]	84.57 [0.000]	119.09 [0.000]	83.46 [0.000]
Hausman specification test	526.94 [0.000]	2014.62 [0.000]	528.51 [0.000]	4046.29 [0.000]	423.03 [0.000]	223.04 [0.000]	585.06 [0.000]	205.51 [0.000]

Note: Robust standard errors are in parentheses, p values are in brackets; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; FGLS: Feasible Generalized Least Squares.

the main results hold in terms of sign, magnitude, and statistical significance (not shown in the tables but available upon request).

Although results in our IV regressions were satisfactory, as extensively discussed in the corporate governance literature, results must be viewed with caution. What is clear from our econometric analysis is that there is a relationship between tone, the amount of information disclosed, and firm value and performance.

5. Conclusions

We use word content analysis to measure meaning in tone for managerial reports in Latin America. We find a positive (negative) and significant relation between positiveness (uncertainty) in tone and firm valuation (Tobin's Q) and accounting financial performance (ROE). These results suggest that market players in Latin America react to tone in corporate communications. Hence, firms should be aware that not only the amount of information but also the way it is communicated could affect the market perception of value.

Our results also show the relevance of information disclosure and its impact on the market perception of firm value (Tobin's Q) and also on accounting financial performance measures such as ROE. Hence, information disclosure creates benefits that accrue directly to (actual or potential) investors. These results provide empirical evidence about the

benefits of corporate disclosure in terms of value and performance for firms in Latin America. Our paper adds to the growing literature that deals with the development of capital markets, access to external financing, cost of capital, firm valuation, and financial performance.

5.1. Managerial implications

From our results, we argue that good firms could adopt governance practices of disclosure and transparency to better signal their quality to market investors and to differentiate themselves from others. As we show, the signals sent by firms in terms of the amount of information disclosure as well as the sentiment (tone) do affect firms' valuation and performance. On the one hand, CEOs, boards of directors, consultants, lawyers and other professionals involved in corporate communication strategies should give special care to the amount of information disclosed and the language used when communicating with the market. Banks, fund managers, and other market investors could extract relevant information for investment decision making from corporate communications. This is especially important in opaque markets with high levels of information asymmetries, such as those in Latin America which create challenges along with opportunities for corporate managers and investors.

Appendix 1. IDI dimensions, elements and questions

No.	Dimension/element	Question
Board of directors		
1	Name of directors	The company provides a list with the names of all directors.
2	Insider/outsider status	The company reveals the independence status (insider/outsider) for each director.
3	Director characteristics	The company indicates the professional background, work experience, age, and gender for each director.
4	Compensation	The company discloses directors' compensation.
5	Attendance	The company informs the attendance of director to board meetings
6	Directors' selection	The company summarize the directors' selection process, terms, and voting procedures.
7	Board committees	The company divulge information about board committees and their objectives.
8	Committees' members	The company shows the names of each committee participant.
Executive summary		
9	Yearly summary of operations	The company indicates information about the main issues occurred in the year
10	Summary of financial information	The company reveals key information about financial results
11	Letter to shareholders	The company provides a letter to the shareholders in relation to the yearly performance of the company
Company information		
12	Firm profile	The company disclose information regarding commercial activities, ownership structure and intl. presence.
13	Organizational structure	The company informs the difference hierarchy level, operational units and support.
14	History	The company summarize their history since its foundation to the present.
15	Strategy	The company divulge a summary of its strategy and the main challenge it has to face.
16	Mission	The company present its mission statement.
17	Vision	The company present its vision statement.
18	Certifications and accreditations	The company share its awards, recognitions, certifications, and the accreditations achieved.
Corporate governance		
19	Good governance code	The company inform the existence and provides details of good governance policies.
20	Governance structure	The company reveals the different entities that conform the governance structure of the firm.
21	Annual corporate governance report	The company disclose a detail report of all its activities related to its corporate governance practice.
22	Fulfillment of its governance code	The company declares the fulfillment of its governance code and any changes occurred during the year.
23	Selection process and compensation of top management	The company shows the selection policies and compensation practice of the Top Management Team.
24	Internal control	The company explains its practices of internal control and auditing.
25	External control	The company summarize all external control entities (supervisory bodies, risk rating agencies, etc.)
26	Conflict of interest manual	The company report the existence of Ethical Codes, procedures gear preventing wrong-doings, etc.
Corporate social responsibility		
27	Relationships with interest groups	The company reveals the compromise and expectations with interest groups and results verifications.
28	Results	The company reports the results on different areas of its CSR goals.
29	Sustainability report	The company shows an integrated report using the standard of the Global Reporting Initiative (GRI).
30	Environmental protection projects	The company informs the environmental projects which is involve in.
31	Environmental investments	The company summarize the investment level in environmental projects.
Financials		
32	Summary of the profit and loss statement	The company presents a summary of its P&L statement.
33	Summary of the balance sheet	The company report a summary of its Balance Sheet.
34	Financial indicators	The company disclose its main financial indicators.
35	Investment returns	The company show the financial return of all its investment portfolio locally and abroad.
36	Budget execution	The company divulge detail information about the execution of its yearly budget.
37	Share market value	The company indicates the evolution of its share price.
Risk management		
38	Risk identification	The company reveals their risk cycles management according to its lines of business and processes.
39	Risk maps	The company shows its risk maps in relation to its environment, operations, finance, and strategy.
40	Legal issues	The company informs the results or status of legal procedures or fines and legal contingencies.
Social dimension (human capital policies and practices)		
41	Procurement and retention of human talent	The company summarize the behavior of its human capital and details such as compensation and career development.
42	Salary	The company reveals its salary scale by position and gender.
43	Work environment	The company reports cultural activities, competence development practice, personal care, among others.
44	Organizational climate	The company informs the results of organizational climate measurement under international standards.
45	Welfare projects	The company shows its plans to improve the workers welfare and recognize performance and tenure.
46	Occupational health	The company disclose its occupational wealth plans such as industrial health and labor risks.
47	Absenteeism	The company divulge the events recognized as causes for labor absenteeism.
Responsibility for other stakeholders		
48	Suppliers relations	The company has a program for suppliers development.
49	Stockholders relations	The company maintains communication channels with investors and the measures the level of utilization.
50	Clients and products relations	The company reveals clients segmentation and their level of satisfaction

Sources: This questionnaire was developed taking into consideration the guidelines regarding good corporate governance practices of the principal international agencies such as OECD, CAF, and the Colombian code of good governance for listed firms (Código País) and non-listed firms (Guía de Gobierno Corporativo para Sociedades Cerradas y de Familia).

Appendix 2. Listing requirements index

This index, proposed by [González et al. \(2019\)](#), establishes differences in listing requirements for Argentina, Brazil, Chile, Colombia, Mexico and Peru. We extracted the needed information from the following documents: Reglamento de listado MERVAL (Argentina), CVM Instruction N° 480 of December 7th 2009 (Brazil), Manual de derechos y obligaciones de emisores de la Bolsa de Comercio de Santiago (Chile), Circular Única de la Bolsa de Valores de Colombia (Colombia), Circular Única de Emisores CNBV (Mexico), and Indicaciones para la Presentación de la Información para los trámites de inscripción y exclusión de valores de la Bolsa de Valores de Lima (Peru).

Listing requirements	Argentina	Brazil	Chile	Colombia	Mexico	Peru
1 Application for registration	1	1	1	1	1	1
2 Proof of registration of the value or issuance program in the National Registry, or its equivalent	0	0	1	1	1	0
3 Certificate of existence and legal representation of the issuer, or its equivalent, issued by the respective competent authority, not later than three (3) months	0	0	1	1	0	0
4 Audited financial statements corresponding to the last two annual periods with their respective notes and the last quarterly financial report	1	1	1	1	1	0
5 Prospectus and its approval by the financial superintendence, or its equivalent	1	1	1	1	1	1
6 Web page in which the information of the issuer is available to the public	1	0	0	1	1	0
7 Letter of certification of compliance with the registration requirements for shares in accordance with the formats established by the exchange. The letter must be signed by the legal representative and the tax auditor of the issuer	0	1	1	1	1	0
8 Detailed list of issuer's shareholders and their stakes, updated on the last day of the month immediately preceding the application for registration	0	0	1	1	1	0
9 Copy of the "survey of best corporate practices", which is required by the financial superintendence, corresponding to the year in which the registration is requested, or a report from the stock exchange of its degree of adherence to the code of best corporate practices.	0	0	0	1	1	1
10 For foreign entities, a document signed by a legal representative, in which compliance with corporate governance practices is reported, in relation to the following aspects: (i) general assembly of shareholders, (ii) board of directors, (iii) disclosure of financial and non-financial information, and (iv) dispute resolution	0	0	0	1	1	1
11 Operation history	0	0	0	0	1	0
12 Accounting capital	0	0	0	0	1	0
13 Average profit in the last three years	0	0	0	0	1	0
14 Securities subject to public offer	0	0	0	0	1	0
15 Minimum number of ordinary shares or certificates of participation to be publicly offered	0	0	0	0	1	0
16 Minimum price of each security to be offered	0	0	0	0	1	0
17 Percentage of the shares that must be placed among the investing public, which will be at least 15% of the total shares of the issuer	0	0	0	0	1	0
18 Power of the representative of the issuer and letter from the secretary of the council where power of attorney is informed	1	1	1	0	1	0
19 Company bylaws	1	1	1	0	1	1
20 Minutes of the ordinary general shareholders' meeting in which the issuance is agreed upon	1	1	0	0	1	0
21 Certification of internal and external auditors' independence	0	0	0	0	1	0
22 Public offer announcement	1	1	1	0	1	1
23 Central securities deposit certification	0	0	1	0	1	0
24 Secretary of the board certification regarding the subscribed capital	1	1	0	0	1	0
25 Minutes of the meeting of the board of directors or equivalent document where the investor relations director has been appointed	0	1	0	1	0	0
26 Proof of market regulator approval of the issuance	1	1	1	0	1	1
27 The minutes of all general shareholders' meetings held during the last 12 months or equivalent documents	0	1	0	0	0	0
28 Copy of the agreement of the shareholders, or of other social pacts filed at the issuer's headquarters	0	1	0	0	0	0
29 Information disclosure policy	0	1	0	0	0	0
30 Stock trading policy, if it exists	1	1	0	0	1	0
31 Disclosure of ownership stakes of directors and top management team members	1	1	1	0	0	0
32 Document in which the legal representative accepts the designation and indicates the powers conferred on her/him, and the responsibilities imposed by law and regulations	0	1	0	0	0	0
33 Payroll of directors, audit committee members, the accountant, and other relevant positions.	1	1	0	0	0	0
34 Minutes of assembly with the appointment of directors	1	0	0	0	0	0
35 Minutes of assembly with the appointment of internal control environment organisms' members	1	0	0	0	0	0
36 Internal rules of the audit committee	1	0	0	0	0	0
37 Minutes of assembly with the appointment of the external auditor	1	0	0	0	0	0
38 Issuers' e-mail address	1	0	0	1	0	0
39 Explain the dividend policy that the company's board of directors plans to follow for the next few years. A statistic of the dividends paid per share in the last five (5) years must also be included	1	0	0	0	0	1
40 Accounting ratios	1	0	0	0	0	0
41 Financial ratios	1	0	0	0	0	0
42 Affidavit of liability	0	0	0	0	0	1
43 Sworn statement of financial disclosure standards	0	0	0	0	0	1
44 Commitment to implement IFRS	0	0	0	0	0	1
45 Annual report	0	1	1	0	0	1
46 Principles of good corporate governance	0	0	0	1	1	1
47 Internal rules of conduct	0	0	0	0	0	1
48 Information about business group	0	0	0	0	0	1
49 Risk assessment reports	0	0	0	0	0	1
50 Historical financial statements and other relevant information	0	0	1	0	0	0
51 A detail of the firm's investment portfolio	1	1	1	0	0	0
52 Ticker symbol	0	0	1	0	0	0
	22	20	17	13	26	16

Appendix 3. IDI dimensions, elements and questions

Name	Description
Information disclosure index (IDI)	
IDI from firms' annual reports	IDI from annual reports of company <i>i</i> in year <i>t</i> . The minimum value is 0 and the maximum value is 1 given the total score of the 50 yes/no questions, using only the company reports.
IDI from all information channels	IDI from all information channels of company <i>i</i> in year <i>t</i> . The minimum value is 0 and the maximum value is 1 given the total score of the 50 yes/no questions, using all information available.
IDI by components	IDI of company <i>i</i> in year <i>t</i> for each of the 9 different categories. The minimum value is 0 and the maximum value is 1 given the total score of the number of yes/no questions in each category.
Tone measures	
Uwn words	Frequency of uncertain, weak modals and negative words over total words in the annual report "president letter" for each company <i>i</i> in year <i>t</i> .
Positive words	Frequency of positive words over total words in the annual report "president letter" for each company <i>i</i> in year <i>t</i> .
Financial performance	
Tobin's Q	Market value of assets divided by the book value of assets for firm <i>i</i> in year <i>t</i> . The value is provided by Bloomberg.
ROE	Return on equity measured by the net profits to equity for firm <i>i</i> in year <i>t</i> .
Market capitalization	Market value of equity (share price times number of shares). The value is provided by Bloomberg.
ROA	Return on assets measured by the net profits to assets for firm <i>i</i> in year <i>t</i> .
Profit dummy	Dummy variable that takes the value of 1 when net profits are positive for firm <i>i</i> in year <i>t</i> , 0 otherwise.
Control variables	
Leverage	Ratio of total liabilities to total assets for each firm in year <i>t</i> .
Size	Natural log of total assets for each firm <i>i</i> in year <i>t</i> , as reported in Bloomberg.
Dividend payout (assets)	Dividend payout calculated as cash dividend to total assets for firm <i>i</i> in year <i>t</i> .
Dividend payout (sales)	Dividend payout calculated as cash dividend to sales for firm <i>i</i> in year <i>t</i> .
Dividend dummy	Dummy variable that takes the value of 1 when firm <i>i</i> in year <i>t</i> pays dividend, 0 otherwise.
Growth (assets)	Yearly percentage increase in asset value for firm <i>i</i> .
Growth (sales)	Yearly percentage increase in sales for firm <i>i</i> .
Growth (EBIT)	Yearly percentage increase in EBIT (earnings before interest and taxes) for firm <i>i</i> .
Volatility	Standard Deviation of EBIT in the preceding three years.
Listing requirements	Index calculated as the ratio of each country requirements on a total of 52 listing requirements identified for Latin American region.
Industry dummy	Dummy variable that takes the value of 1 when firm <i>i</i> belong to industry <i>X</i> , 0 otherwise.
Shareholder dummy	Dummy variable that takes the value of 1 when the majority shareholder of firm <i>i</i> in year <i>t</i> belong to category <i>X</i> , 0 otherwise.
Country dummy	Dummy variable that takes the value of 1 when firm <i>i</i> belong to country <i>X</i> , 0 otherwise.

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