

INTERNET FINANCIAL COMMUNICATION: EVIDENCE FROM UNREGULATED MARKETS OF BRUSSELS AND PARIS

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ABSTRACT

This paper examines the internet financial disclosure of 34 companies listed on un-regulated markets in Brussels and 34 twin firms quoted in Paris. The purpose of this research is twofold. First, we study the level of internet financial disclosure and we compare the levels of French and Belgian un-regulated markets. Next we identify factors determine this level. We applied an analytical grid, based on prescriptions in the literature concerning Internet financial disclosure to analyze 68 websites. A communication score was thus obtained for each firm. We identify if differences in communication scores are significant. This score was then regressed according to our hypotheses. The findings show Belgian firms have a higher level of internet financial communication and that a firm' size, age, membership of the IT sector and market place have an impact on the internet financial disclosure of un-regulated market listed companies.

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KEYWORDS: Financial Communication, Websites Analyses – Internet Financial Reporting (IFR), Non-Regulated Financial Markets, Voluntary Disclosure

INTRODUCTION

The internet has become an important communication channel. In Europe, more than 500 million persons, representing 61% of the population were internet users in 2011. Between 2000 and 2011, the number of users increased by 528.1% (www.internetworldstats.com/stats.htm). The internet provides a useful communication tool for corporate organizations. A main benefit of Internet reporting is the potentially large savings in the cost of financial disclosure (Oyelere & Mohamed, 2007). Internet financial reporting (IFR) practices in various countries have been studied: for example Asbaugh, Johnstone & Warfield (1999) in US; Craven & Martson (1999) and Gowthrope (2004) in UK; Mendes-da-Silva & Christensen (2004) in Brasil; Xiao, Yang & Chow (2004) in China; Laswad, Fisher & Oyelere (2005) in New Zealand; Khadaroo (2005) in Malaysia; Almilialia (2009a and b) in Indonesia; Pozniak (2010) in Belgium. However, no study compared French and Belgian unregulated markets.

This paper evaluates the level of internet financial disclosure by developing a scoring system and at comparing the level of reporting in French and Belgian un-regulated markets. Then we highlight the main determiners of the financial communication score of companies on the web.

The object of the present survey is firms quoted on un-regulated markets in Brussels and their associated twins quoted in Paris. There are two un-regulated markets: Alternext and the Free Market. They have been legally classified as multilateral trading facilities (MTFs) since November 1, 2007. They are unregulated markets in the sense of the European directives. Alternext Paris, inspired by the English Alternative Investment Market (“AIM”), was launched in May 2005. In June 2006, Alternext Brussels followed. Euronext Brussels developed the Free Market in November 2004 based on the Free Market established on the Paris Stock Exchange in 1996.

On the Free Market “no precondition, no anteriority of the accounts and no minimal percentage of distribution are required for registration on the Free Market” (Goldberg-Darmon, 2006). In matters of communication, companies listed on this market have no obligations. On Alternext, an unregulated but organized market, some conditions must be met for companies to be listed: two years of accounting, a listing sponsor and a public offering of at least 2.5 million euros. Once quoted on Alternext, companies have to publish an annual financial report. However, no company has to communicate on the Internet. In such a context, IFR results from a voluntary effort of the company.

This paper is structured as follows. In the first section we present a literature review and formulate our research hypotheses concerning the determinants of internet financial communication. We also present prescriptions in the literature concerning internet financial disclosure, which allow us to build our analytical grid of the website. In the second section, we present our methodology. The results are discussed in the third section. In this section, we first present the results of the web content analysis and how we get a financial communication score for each firm in our sample. Then, we present the findings of the Ordinary Least Squares (OLS) regression, which is used to highlight the determinants of internet financial communication.

LITERATURE REVIEW

A number of academic studies have examined the determiners of voluntary disclosure. Some studies them limit their attention to Corporate Social Responsibility (CSR) communication in the annual report (Hamid, 2004; Branco & Rodrigues, 2006; Ben Rhouma & Cormier, 2007) or to the firm’s website (Pozniak, Ferauge, Arnone & Geerts, 2011). Others focus on Research and Development (R&D) communication in the annual report (Entwistle, 1999; Percy, 2000; Ding & Stolowy, 2003; De Bourmont, 2010). Many authors have dealt with financial communication (McNally, Eng & Hasseldine, 1982; Chow & Wong-boren, 1987; Raffournier, 1995; Adams & Hossain, 1998).

Various studies examine determinants of internet financial disclosure. These studies include: Craven & Martson, 1999; Asbaugh, Johnstone & Warfield, 1999; Ho & Wong, 2001; Larran & Giner, 2001; Bonson & Escobar, 2002; Debreceeny, Gray & Rahman, 2002; Ettredge, Richardson & Scholz, 2002; Martson 2003; Oyelere, Laswad & Fisher, 2003; Rodriguez & Menezes, 2003; Xiao, Yang & Chow, 2004; Mendes-da-Silva & Christensen, 2004; Laswad, Fisher & Oyelere, 2005; Debreceeny & Rahman, 2005; Paturel, Matoussi & Jouini, 2006; Bollen, Hassink & Bozic, 2006; Andrikopoulos & Diakidis, 2007; Almilia, 2009a; Almilia, 2009b; Oxibar 2010; Pozniak, 2010; and Pozniak & Croquet 2011. We formulate our hypotheses based on these earlier works.

Age

In our study, the company’s age is known. Company age has a positive impact on the level of disclosure of its CSR information by some researches (Hamid, 2004; Branco & Rodrigues, 2006). Indeed, the age of the firm seems to be linked to its reputation and its involvement in CSR activities. Hence, we formulated the following hypothesis:

Hypothesis 1: Age of the firm has a positive effect on its internet financial communication score.

Size

It is widely accepted in the existing literature that the size has an influence on the quantity of information provided by the company (Craven & Martson, 1999 ; Asbaugh, Johnstone & Warfield, 1999; Ho & Wong, 2001; Larran & Giner, 2001; Bonson & Escobar, 2002; Debreceeny, Gray & Rahman, 2002; Ettredge, Richardson & Scholz, 2002; Oyelere, Laswad & Fisher, 2003 ; Rodriguez & Menezes, 2003;

Mendes-da-Silva & Christensen, 2004; Bollen, Hassink & Bozic, 2006; Andrikopoulos & Diakidis, 2007; Almilia, 2009a; Almilia, 2009b; Pozniak & Croquet 2011). Debreceeny, Gray & Rahman (2002) explain that the asymmetry of information between managers and shareholders is higher in bigger companies. Therefore, agency costs are higher in those firms as well. Besides, larger companies provide more information than smaller firms because they are more visible publicly and look after their reputation. Almilia (2009a) argues that big firms have highly developed internal reporting systems and so producing information costs them less. This leads us to the following hypothesis:

Hypothesis 2: Size of the firm has a positive effect on its internet financial communication score.

In this research, size is measured using the natural logarithm of total assets. Total assets are often used as a measure of company size (Mc Nally et al. 1982, Rodriguez & Menezes, 2003 and Hamid, 2004). The logarithmic transformation is used to mitigate skewness in the data set (Adams and Hossain, 1998; Almilia, 2009a).

Sector

Numerous researches highlight the impact of sector on the level of internet financial disclosure (Bonson & Escobar, 2002; Oyelere, Laswad & Fisher, 2003; Almilia, 2009a). For example, Ding and Stolowly (2003) found that an industrial company communicates more on R&D; while Entwistle (1999) found that companies from traditional sectors publish less R&D information than IT or biotech companies. Xiao, Yang & Chow (2004) discovered that IT firms tend to communicate more on their website presumably to highlight their expertise and show their technology mastery. Other researches find a positive relation between intensity of financial communication on internet and membership of the firm in the IT sector (Debreceeny, Gray & Rahman, 2002; Bollen, Hassink & Bozic, 2006; Pozniak 2010). We develop the hypothesis to examine these factors:

Hypothesis 3: Membership of the firm in the IT sector has a positive effect on its internet financial communication score.

We use a binary variable, which takes the value 1 for companies from the IT sector and zero for others. In our study, we define the IT sector as the ICB sector 9 Technology, 6 Telecommunication and 5555 Media Agencies.

Dispersion of Capital

When capital is highly diluted there is potential for agency conflicts because of the divergence of interests between contracting parties (Abdelsalam, Bryant & Street, 2007). Agency theory says that in this case the firm should disclose more information to reduce agency costs (Jensen & Meckling, 1976). Moreover, when capital is in the hands of a few big shareholders or a family, they tend to disclose less information. Therefore, some authors (Debreceeny & Rahman, 2005 and Paturel, Matoussi & Jouini, 2006) hypothesize a positive relation between information disclosure and the dispersion of shareholdings. Other studies (Asbaugh, Johnstone & Warfield, 1999; Ho & Wong, 2001; Bollen, Hassink & Bozic, 2006) demonstrate the proportion of shares available for individual investors and the level of information disclosure on the web are positively linked. Thus, we formulate the hypothesis:

Hypothesis 4: Dispersion of the firm's capital has a positive effect on its internet financial communication score.

Dispersal of the capital is measured by free float, which indicates the percentage of participation held by the public. This information is available on Euronext's website.

Level of Debt

To reassure creditors of the ability to pay off debts, a more indebted firm tends to communicate more information (Debreceeny, Gray & Rahman, 2002). Andrikopoulos & Diakidis (2007) stress that debt growth leads to growth in agency conflicts between shareholders and creditors. More financial disclosure on the internet could reduce such agency costs. Laswad, Fisher & Oyelere (2005) discovered a positive link between the debts of local authorities they studied and their disclosure level on internet.

In her study of 303 firms listed on the Indonesian Stock Exchange, Almilia (2009a) finds that leverage is a determining factor of the index of financial and sustainability reporting. She explains that, thanks to the Agency theory, firms with a higher level of debt have an incentive to voluntarily disclose corporate information to stakeholders (Jensen & Meckling, 1976). Other studies show a negative relation between internet financial disclosure and debt levels (Paturel, Matoussi & Jouini, 2006; Pozniak & Croquet 2011). They argue that firms with higher levels of debt fear showing a bad image and so prefer not to diffuse financial information. Therefore, we propose the hypothesis:

Hypothesis 5: A firm's level of debts has an ambiguous effect on its internet financial communication score.

The level of debt is measured by the ratio of total debt to total assets (Almilia, 2009a; Pozniak & Croquet 2011).

Performance

There is no consensus in the literature concerning the effect of the performance on the degree of disclosure. Some studies found a positive impact. They argue that to assure their position, attract capital and reduce the risk of their company being underestimated, lucrative companies want their performance to be recognized (Asbaugh, Johnstone & Warfield, 1999; Bonson & Escobar, 2002; Xiao, Yang & Chow, 2004; Debreceeny & Rahman, 2005). In their study, Paturel, Matoussi & Jouini (2006) discovered a positive relation for French companies and a negative relation for British companies.

In a study of the banking sector and Indonesian LQ-45 stock index, Almilia (2009b) supposed that there is a positive association between the internet financial reporting index and profitability. She argues that the firm's profitability can be regarded as an indicator of good management. Therefore, there can be incentives to disclose more information when profitability is high and to show stakeholders the firm is more profitable than its competitors. She validated her hypothesis with the ROE indicator but the ROA indicator was not statistically significant. Other authors (Mendes-da-Silva & Christensen, 2004; Pozniak, 2010) highlighted a negative relation between firm profitability and the level of financial communication. There is a risk of competition when favorable information is disclosed. Based on this, we formulate the hypothesis:

Hypothesis 6: The firm's performance has an ambiguous effect on its internet financial communication score.

In this paper, performance is measured by the Return on Equities (ROE) ratio, like previous studies (Oyelere, Laswad & Fisher, 2003; Hamid, 2004; Debreceeny & Rahman, 2005; Paturel, Matoussi & Jouini, 2006; Almilia, 2009b) and the Return on Assets (ROA) ratio, like previous studies (McNally, Eng & Hasseldine, 1982; Oyelere, Laswad & Fisher, 2003; Xiao, Yang & Chow, 2004; Almilia, 2009b). ROE and ROA value were obtained from Belfirst and Amadeus software, edited by Bureau Van Dijk.

Before exploring the determinants of internet disclosure level, authors must evaluate the level of communication on company websites. The level of disclosure is approached by a communication score, which represents the quantity of items of financial information items available on the website, as well as information about the firm's profile and the ergonomics of the website. Some researchers studied the Internet Financial Reporting (IFR) (Allam & Lymer, 2003; Oyelere, Laswad & Fisher, 2003; Xiao, Yang & Chow, 2004; Gowthorpe 2004; Khadaroo, 2005; Lybaert, 2005; Abdelsalam, Bryant & Street, 2007; Oyelere & Mohamed, 2007; Gabteni, 2011). They developed a disclosure score including elements that should be available on the website of the company. Other authors show what types of information are interesting for investors and surfers, and should be available on company websites (Pervan, 2006; Euronext, 2006; Dutta & Bose, 2007; Léger, 2008; Barredy & Darras, 2008).

Khadaroo (2005) argues, "*Financial information is hidden under other topics such as corporate overview, stockholder information and financial information*". A presentation of the firm, its activity, its history, the market shares and the evolution of the competitive environment are recommended (Khadaroo, 2005; Barredy & Darras, 2008; Gabteni, 2011). Abdelsalam, Bryant & Street (2007) list corporate governance details among their credibility checklist items. Ergonomics of the website is also very important: for example whether answers to FAQs (Xiao, Yang & Chow, 2004; Lybaert, 2005; Abdelsalam, Bryant & Street, 2007; Dutta & Bose, 2007; Léger, 2008), video files (Khadaroo, 2005) other languages and the date of the last update are available (Lybaert, 2005).

In matters of financial information, researches show the importance of the availability of the annual report (Khadaroo, 2005; Lybaert, 2005; Pervan, 2006; Euronext, 2006; Dutta & Bose, 2007; Léger, 2008; Barredy & Darras, 2008) and the intermediate results (Dutta & Bose, 2007; Abdelsalam, Bryant & Street, 2007; Khadaroo, 2005; Lybaert, 2005; Xiao, Yang & Chow, 2004; Gowthorpe 2004). Lybaert (2005) and Dutta & Bose (2007) also underscore the importance of an audit rapport. The presence of a table summarizing the main key figures (Euronext, 2006) and key ratios (Allam & Lymer, 2003; Xiao, Yang & Chow, 2004; Lybaert, 2005; Dutta & Bose, 2007; Gabteni, 2011) is desirable, as well as the on-line publishing of the IPO prospectus (Euronext, 2006; Léger, 2008). The organization chart (Pervan, 2006; Euronext, 2006; Dutta and Bose, 2007; Gabteni, 2011), shareholding structure (Khadaroo, 2005; Lybaert, 2005; Euronext, 2006; Dutta and Bose, 2007; Léger, 2008; Barredy and Darras, 2008; Gabteni, 2011), and press releases (Allam & Lymer, 2003; Gowthorpe 2004; Khadaroo, 2005; Lybaert, 2005; Pervan, 2006; Euronext, 2006; Dutta and Bose, 2007; Abdelsalam, Bryant & Street, 2007; Léger, 2008) are expected to interest investors.

Some studies (Allam & Lymer, 2003; Xiao, Yang & Chow, 2004; Khadaroo, 2005; Lybaert, 2005; Pervan, 2006; Dutta & Bose, 2007; Léger, 2008; Barredy & Darras, 2008; Gabteni, 2011) argue that firms should communicate the history of share prices and share dividends.

Many authors declare that a specific relationship with investors should be built up. This goal can be reached thanks to a specific web page for investors (Khadaroo, 2005; Pervan, 2006; Barredy & Darras, 2008; FSMA 2012), an address, a telephone and/or the email address of a specific contact person for investors (Khadaroo, 2005; Allam & Lymer, 2003; Pervan, 2006; Euronext, 2006; Dutta & Bose, 2007; Barredy & Darras, 2008; Léger, 2008), a specific forum (Barredy & Darras, 2008), the schedule of financial communication events (Gowthorpe, 2004; Xiao, Yang & Chow, 2004; Lybaert, 2005; Euronext, 2006; Dutta & Bose, 2007; Barredy & Darras, 2008; Léger, 2008), a periodic newsletter (Euronext, 2006; Dutta and Bose, 2007), a letter to the shareholders (Leger, 2008; Barredy & Darras, 2008), the shareholder's guide and rights and a club for shareholders (Léger, 2008).

These recommendations concerning financial communication on the Internet helped us to create an analysis grid of websites. This grid is used to evaluate the quantity of communication of each company in our research and to derive an overall score.

Table 1: Analysis Grid of Websites

Analysis Grid of Websites-Communication Effort Firm's profile	
1	History
2	Activities
3	Strategy
4	President's words
5	Contact
6	Market share
7	Position regards to competitors
Website's Ergonomy	
8	« Investors » <i>On the 1st page</i>
9	« Press » or «News»
10	Several languages version of website
11	Date of last changes on the website
12	Help tools
13	Search engine
14	Roadshow video
15	Joining a periodic letter
16	Get the press release by mail
Communication Effort Score	
Financial Communication	
1	Annual reports
2	Annual account
3	Audit report <i>For this year</i>
4	Intermediate results
5	Management reports
6	Annual reports
7	Annual account
8	Audit report <i>For previous years</i>
9	Intermediate results
10	Management reports
11	Prospectus of IPO
12	Financial ratios or main key figures
13	Board of Directors Reports
14	General assembly reports
15	Explanation about data
16	Financial analysts reports
17	Specific webpage for investors
18	Link to Euronext's website
19	Current share's price
20	History of share's price
21	Current dividend
22	Previous dividends
23	Shareholder structure
24	Number of shares
25	Organization chart
26	Corporate Governance
27	Letter to shareholder
28	Specific contact for investors
29	Shareholder forum
30	FAQ
31	Shareholders' schedule
32	Shareholders' guide
33	Shareholders' rights
34	Press release
35	Press review
Financial Communication Score	
Total Communication Score	

This table shows the analysis grid of web site, which was built thanks to the literature review. This grid was used to analyze 68 websites of our sample and get a score for each firm. The total communication score is composed of a general effort of communication and a financial communication score.

METHODOLOGY AND DATA

In this section, we present the sample and its sectorial distribution (see Table 2) and the methodology. This study concerns all the firms quoted on unregulated markets in Brussels (on 31st March 2012). There exist twenty-three firms on the Free Market and fourteen on Alternext. Both are considered unregulated markets. Belgian firms are matched with firms quoted on unregulated markets in Paris. This pairing

technique is based on sector and size, in a manner similar to other studies (Caby, 1994; Bughin & Colot, 2008; Pozniak & Croquet, 2011).

Paired samples are similar with regard to certain characteristics (in our case: the size and the sector) which guaranteed that the observed effect come from the studied variable (in our case: the quotation) and not from difference of sample composition. The structure of samples is checked a-priori to obtain samples presenting identical structures. From then on, the errors due to the differences of composition of the groups are reduced (Thietart, 2003). To construct a paired sample, we first look at the complete ICB sector code (level 4). Then we look at the size, measured by total assets. A variation of 20% is accepted. If there is no match for the size criteria, we look at a lower level of the ICB sector. Turnover and capitalization are also observed in case of equality. Three firms quoted on Alternext Brussels have no twin on Alternext Paris, even at the lowest level of the ICB sector. Therefore, they were removed from our study. Thus, our sample is composed of 23 firms quoted on the Free Market of Brussels and their 23 French twins, along with 11 firms quoted on Alternext of Brussels and their 11 French twins. Therefore, we have 68 firms in our sample. Table 2 presents the sectorial distribution of our sample.

Table 2: Sectorial Distribution

	ICB Code	Number of Firms	Percentage
1	Oil & Gas	0	0%
1000	Basic Materials	0	0%
2000	Industrials	16	24%
3000	Consumer Goods	18	26%
4000	Health Care	2	3%
5000	Consumer Services	10	15%
6000	Telecommunication	0	0%
7000	Utilities	0	0%
8000	Financials	10	15%
9000	Technology	12	18%
		68	100%

This table shows the sectorial distribution of our paired sample. There is no firm in Oil & Gas, Basic Materials, Telecommunication and Utilities sectors. The more represented sectors are Consumer Goods, Industrials and Technology.

For the first step we use the analysis grid presented in Table 1 to analyze the 68 websites. All websites are analyzed in the first week of April 2012. We assign one point for each item of the analysis grid present on the web site. A score for every company is thus obtained. From this score, we estimate the level of disclosure of website information.

The scoring technique is a current practice to evaluate voluntary disclosure levels (Larran & Giner, 2001). Indeed, the quantity of disclosed items is a reasonable measure of the trend to diffuse information (Branco & Rodrigues, 2006). Some authors (Debreceeny & Rahman, 2005; Khadaroo 2005; Paturel, Matoussi & Jouini, 2006; Abdelsalam, Bryant & Street, 2007; Jouini, 2007; Gabteni, 2011) do not attempt to balance the various items to avoid problems of subjectivity and consider each element as having equal importance. Chow & Wong Boren (1987) demonstrate that when the analysis grid contains many items the same results are obtained with or without weighting.

Next, we use a paired sample T-test to compare the communication score of Belgian and French markets and to determine if the differences are significant. This score is examined via the ordinary least squares (OLS) method using the explanatory variables noted earlier. We search for IFR determinants in the full sample and in Belgian and French samples separately.

RESULTS

First, we detail the results of the web site analyses and the scores for communication. Next, we present the findings of our regression by the Ordinary Least Squares (OLS) method.

Website Analyses and Communication Score

Examining the analysis grid items available on websites we can make some remarks. In a firm's profile, the items most often available are the activities of the firm and a contact. On the other hand, market share and position concerning competitors are almost never available.

In the website's ergonomics category, the items most often available are "Press" and "Investors" buttons. Several Belgian firms offer to join a periodic letter (21% against 12% in Paris) and/or to send a press release by mail (6% against 0% in Paris). The help tool and date of last modification are not available on any website analyzed. In the financial category, the items most often available are the annual reports, link to Euronext's website, press release and press review. Not a single website presents a letter to shareholders or a shareholders' guide. A FAQ, a shareholder forum, shareholder rights, an explanation of data and current dividends are not often available.

Table 3 presents the total communication score and its two categories: a score for effort at communication and one for financial communication. These scores represent the number of items, on average, available on the web site of the company. Results are shown for every unregulated market, in Brussels and in Paris.

Table 3: Communication Scores

Scores		Brussels			Paris		
		Unregulated (34 Firms)	Free Market (23 Firms)	Alternext (11 firms)	Unregulated (34 Firms)	Free Market (23 Firms)	Alternext (11 Firms)
Communication	Mean	4.76	4.70	4.91	4.06	3.35	5.55
Effort Score	Std dev	1.86	1.61	2.39	2.07	1.92	1.57
Financial	Mean	8.44	6.30	12.9	4.88	1.78	11.36
Communication	Std dev	5.77	4.55	5.65	6.17	2.49	6.62
Total	Mean	13.21	11	17.82	8.94	5.13	16.91
Communication	Std dev	6.95	5.57	7.53	7.70	3.88	7.71

This table shows the average communication score for French and Belgian un-regulated markets. As we can see, the total score is higher in Brussels than in Paris. The communication effort scores for French and Belgian un-regulated markets are quite the same. The difference of total communication score come from the financial communication score, which is almost twice as high in Brussels as in Paris.

Table 3 shows the total score for communication is higher for firms quoted on unregulated markets in Brussels than for those in Paris (13.21 items versus 8.94 items). If we detail this total score, we discover that the communication effort is quite the same: 4.76 items, on average, for Brussels against 4.06 items, on average, for Paris. However, the financial communication score is almost twice as high in Brussels as in Paris (8.44 items versus 4.88 items). Firms quoted on the Belgian unregulated markets disclose, on average, more financial information on their websites than firms quoted on the same markets in Paris. Therefore, the total score gap between Belgian and French firm's comes from the financial communication score.

We found that firms quoted on Alternext have the same level of financial disclosure, no matter where they are quoted (12.9 items for Brussels versus 11.36 items for Paris). However, there is a large gap between Belgian and French Free Markets. Firms listed on the Free Market of Brussels have a higher financial communication score (6.30 items) compared to their French twins (1.78 items). Belgian firms quoted on the Free Market make a greater voluntary effort to disclose financial information on their websites.

We also notice that firms quoted on Alternext (Brussels and Paris) communicate more financial information on their web sites than those quoted on Free Market (of Brussels and Paris). This finding is explainable by their legal obligation to disclose an annual report, intermediate results and other important data. They have no obligation to diffuse them on their web site, but we imagine that when the documents are already made it is easier to put them on the Internet.

Next, we completed a mean comparison test for paired samples (see Table 4). We found that the communication effort score differences were statistically significant at 10%. Accepting that the mean difference is positive (so that Belgian ‘score > French ‘score) would be a mistake in 7.56 % of cases. We found the financial communication score differences were statistically significant at 1%. Accepting that the mean difference is positive (so that Belgian ‘score > French ‘score) would be a mistake in 0.33% of cases. We found that the total communication score differences were statistically significant at 1%. Accepting that the mean difference is positive (so that Belgian ‘score > French ‘score) would be a mistake in 0.49% of cases.

Table 4: Paired t Test

Paired t Test				
Brussels ‘score –Paris’score				
Communication Effort Score	T	1.469		
	Degree of freedom	33		
	Ho: mean(diff) = 0	Ha: mean(diff) < 0 Pr(T < t) = 0.9244	Ha: mean(diff) != 0 Pr(T > t) = 0.1513	Ha: mean(diff) > 0 Pr(T > t) = 0.0756
Brussels ‘score –Paris’score				
Financial Communication Score	T	2.9046		
	Degree of freedom	33		
	Ho: mean(diff) = 0	Ha: mean(diff) < 0 Pr(T < t) = 0.9967	Ha: mean(diff) != 0 Pr(T > t) = 0.0065	Ha: mean(diff) > 0 Pr(T > t) = 0.0033
Brussels ‘score –Paris’score				
Total Communication Score	T	2.7387		
	Degree of freedom	33		
	Ho: mean(diff) = 0	Ha: mean(diff) < 0 Pr(T < t) = 0.9951	Ha: mean(diff) != 0 Pr(T > t) = 0.0099	Ha: mean(diff) > 0 Pr(T > t) = 0.0049

This table shows the paired t test applied to the difference between Brussels and Paris scores. It reveals that this difference is statistically significant at 10% for the communication effort score, at 1% for the financial communication score and at 1% for the total communication score. Therefore, firms quoted on the un-regulated market of Brussels have higher scores.

Determinants of Communication Score

Based on the existing literature, we formulated our hypotheses. In addition, we add a new variable “market”. Indeed one of the aims of this research is to compare French and Belgian un-regulated markets. Therefore, we use a binary variable, which takes the value 1 for companies quoted in Brussels, and zero for companies quoted in Paris. We make no hypothesis about the interpretation of the effects on the communication score because nothing in the literature allows us to do so. Table 5 summarizes the explanatory variables and their expected effect on the dependent variable.

Table 5: Definition Variables and Expected Effect

Variables	Measure	Expected Effect
Age	Number of year since the creation of the firm	Positive
Size	Log total assets	Positive
Sector	IT = 1 and others = 0	Positive
Dispersion of capital	Free float	Positive
Level of debt	Total debt / Total assets	Ambiguous
Performance	ROE and ROA	Ambiguous
Market place	Brussels = 1 and Paris = 0	Ambiguous

This table shows the explanatory variables and how they are measured. The variables Age, Size, Sector and Dispersion of capital are supposed to have a positive effect on the dependent variable. The effect of variables Level of debts, Performance and Markets place are ambiguous.

The dependent variable is the total communication score, which is obtained by adding the general effort of communication score to the financial communication score. Therefore, our model takes on the following shape:

Communication score

$$= \alpha + \beta_1 (\text{age}) + \beta_2 (\text{size}) + \beta_3 (\text{sector}) + \beta_4 (\text{dispersion of capital}) + \beta_5 (\text{level of debts}) + \beta_6 (\text{performance}) + \beta_7 (\text{market place}) \quad (1)$$

Table 6 presents descriptive statistics of explanatory variables. Because “sector” and “market place” are binary variables, they do not appear in Table 6.

Table 6: Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max
Communication Score	11.074	7.593	0	28
Age	22.393	16.182	3.358	101.29
Size	9.160	1.331	4.234	11.800
Dispersion of capital	19.937	20.184	0	96.29
Level of debts	0.5224	0.3069	0	1.855
Performance (ROE)	11.765	186.72	-328.13	1449.69
Performance (ROA)	-8.812	47.446	-326.90	28.4

This table shows the descriptive statistics of the explanatory variables.

Table 7 presents the correlation between variables. There is a close correlation between ROE and ROA. So two models were tested: model *a* using ROE for performance measure and model *b* using ROA for performance measure.

Table 7: Correlation between Variables

	Com Score	Age	Size	Sector	Dispersion of Capital	Level of Debts	ROE	ROA	Market Place
Communication score	1.000								
Age	-0.1377	1.000							
Size	0.4334	0.2978	1.000						
Sector	0.4136	-0.1631	0.0499	1.000					
Dispersion of capital	0.0585	0.1290	0.0102	0.0039	1.000				
Level of debts	-0.0354	-0.2370	-0.3360	-0.0996	0.0161	1.000			
Performance (ROE)	0.0484	-0.0806	-0.1612	0.2779	-0.0739	0.2164	1.000		
Performance (ROA)	0.1387	0.1711	0.4235	-0.0937	0.0627	-0.3961	-0.6540	1.000	
Market place	0.2829	-0.2110	-0.1485	0.1064	0.1411	0.1384	-0.0812	0.1389	1.000

This table shows the correlation between the explanatory variables. As we can see, ROE and ROA are correlated. It is the reason why we used them into two different models.

Table 8 shows the results of the Ordinary Least Squares estimates obtained for the whole sample of 68 firms. A White test was done to avoid any heteroscedasticity problem. The quality of adjustment of both models is correct: 47 percent of R-squared. Both model *a* and *b* are similar and show the same results. The coefficient of the “age” variable appears to be statistically significant at the 5 percent level. The negative sign of this coefficient means that the age of the firm has a negative effect on its internet communication score. This invalidates our first hypothesis, which supposed that the older the firm is, the better the level of internet financial communication.

The coefficient of the “size” variable is statistically significant at 10 percent. The positive sign of this coefficient confirms our second hypothesis: the firm’s size has a positive effect on its internet financial communication score.

Hypothesis 3, which postulates a positive influence of the sector on the communication score on the internet, is confirmed. The coefficient of the “sector” variable is statistically significant at 10 percent level and has a positive sign. So a company in the IT sector will tend to communicate more financial information on its website. The variable “market place” is statistically significant at the 10 percent and

has a positive sign. So firms quoted on un-regulated markets in Brussels tend to disclose more financial information on the internet than those quoted in Paris. This validates the findings of our website analyses. Other hypotheses are not confirmed: the coefficients of the dispersion of capital, level of debt, and performance are not significant.

Table 8: Results of Linear Regression for the Whole Sample

Communication Score	Firms Quoted on Unregulated Markets of Brussels and Paris			
	Model a (with ROE for Performance)		Model b (with ROA for Performance)	
	Coef (Std. Error)	Sign	Coef (Std. Error)	Sign
Age	-0.0783 (0.0383)	0.045**	-0.0774 (0.0378)	0.045**
Size	3.109 (0.6434)	0.000***	3.171 (0.6377)	0.000***
Sector	5.973 (1.927)	0.003***	6.057 (1.894)	0.002***
Dispersion of capital	0.0132 (0.0279)	0.638	0.0128 (0.0274)	0.642
Level of debts	2.325 (2.327)	0.322	2.183 (2.653)	0.414
Performance	0.0015 (0.0028)	0.593	-0.0070 (0.0168)	0.677
cons	4.200 (1.512)	0.007***	4.286 (1.502)	0.006***
Nber of obs	68		68	
F stat	8.04		8.34	
Prob > F	0.0000		0.0000	
R-squared	0.4745		0.4747	

*This table shows the regression estimates of the equation: Communication score = $\hat{\alpha}$ + β_1 (age) + β_2 (size) + β_3 (sector) + β_4 (dispersion of capital) + β_5 (level of debts) + β_6 (performance) + β_7 (market place). ***, ** and * indicate the significance at the 1, 5 and 10 percent levels respectively. We can see that Age, Size and Sector are statistically significant. It means that they have an impact on the dependent variable: the total communication score.*

We also made a regression to Brussels and Paris sample separately (see Table 9). The results show that size and sector were significant (in both model *a* and *b*) and that performance measured by ROE was significant (model *a*). In the sample of firms quoted in Paris, we found that age and size were statistically significant in both model *a* and *b*.

CONCLUSION

The purpose of this study was, first, to measure the quantity of Internet Financial Reporting of 68 companies listed on un-regulated markets in Brussels and Paris and to compare their level of IFR. Our findings suggest that, despite being in the same markets with the same rules, firms quoted in Brussels tend to disclose more information on their websites than those in Paris.

The second goal was to determine the factors influencing the level of internet financial communication. The paired sample of 68 firms shows that larger firms are more likely to disclose financial reports on the website and confirm the conclusions of previous studies (Craven & Martson, 1999; Asbaugh, Johnstone & Warfield, 1999; Ho & Wong, 2001; Larran & Giner, 2001; Bonson & Escobar, 2002; Debreceeny, Gray & Rahman, 2002; Ettredge, Richardson & Scholz, 2002; Oyelere, Laswad & Fisher, 2003; Rodriguez &

Menezes, 2003; Mendes-da-Silva & Christensen, 2004; Bollen, Hassink & Bozic, 2006; Andrikopoulos & Diakidis, 2007; Almilía, 2009a; Almilía, 2009b; Pozniak & Croquet 2011). Age of the firm appears to have a negative effect on the level of internet financial communication. This does not agree earlier studies by Hamid (2004) and Branco & Rodrigues (2006). The membership of the IT sector seems to have a positive impact on the internet financial communication score. This is consistent with previous research by (Debreceny, Gray & Rahman, 2002; Xiao, Yang & Chow, 2004; Bollen, Hassink & Bozic, 2006; Pozniak 2010). The market place also has an impact. We see that firms quoted on un-regulated markets in Brussels have a higher communication score. In the Belgian sample, size, sector and performance measured by ROE are statistically significant. In the French sample, size and age are statistically significant.

Table 9: Results of Linear Regression Separate Sample

Communication Score	Firms Quoted on Unregulated Markets of Brussels				Firms Quoted on Unregulated Markets of in Paris			
	Model a (with ROE for Performance)		Model b (with ROA for Performance)		Model a (with ROE for Performance)		Model b (with ROA for Performance)	
	Coef (Std. Error)	Sign	Coef (Std. Error)	Sign	Coef (Std. Error)	Sign	Coef (Std. Error)	Sign
Age	-0.029 (0.0597)	0.631	-0.021 (0.0677)	0.757	-0.156 (0.074)	0.043**	-0.1555 (0.074)	0.045**
Size	2.696 (0.9642)	0.009***	2.292 (1.041)	0.036**	3.465 (1.026)	0.002***	3.670 (1.008)	0.001***
Sector	5.607 (2.229)	0.018**	6.040 (2.602)	0.028**	3.558 (3.552)	0.325	3.237 (3.437)	0.355
Dispersion of capital	-0.000 (0.0395)	0.996	0.018 (0.0649)	0.783	0.014 (0.060)	0.818	0.0174 (0.0609)	0.777
Level of debts	1.550 (2.712)	0.572	1.595 (4.303)	0.714	4.858 (4.887)	0.329	4.262 (5.112)	0.412
Performance	0.0547 (0.0208)	0.014**		0.595	0.000 (0.004)	0.889	-0.0109 (0.0218)	0.621
cons	-12.58 (9.039)	0.175		0.322	-22.66 (10.26)	0.036	-24.469 (9.915)	0.020
Nber of obs	34		34		34		34	
F stat	6.19		5.89		4.76		4.84	
Prob > F	0.0004		0.0005		0.0020		0.0018	
R-squared	0.4202		0.3564		0.5456		0.5499	

*This table shows the regression estimates of the equation: Communication score = α + β_1 (age) + β_2 (size) + β_3 (sector) + β_4 (dispersion of capital) + β_5 (level of debts) + β_6 (performance) for Brussels and Paris samples separately. ***, ** and * indicate the significance at the 1, 5 and 10 percent levels respectively. As we can see, Size is statistically significant in both samples. Sector and Performance are statistically significant in Brussels sample. Age is statistically significant in Paris sample.*

This study provides practical insight into the understanding of internet financial disclosure by firms quoted on un-regulated markets in Brussels and Paris. Alternext and the Free Market are relatively recent and, to our knowledge, are not often the topics of such a research projects (except by Pozniak, 2010 and Pozniak & Croquet, 2011).

Our research suffers from some limitations and future research could be done. First, our sample is limited to 68 firms. Twin firms from other un-regulated markets could be added to the sample. For example, 34 companies listed on AIM London and 34 companies from AIM Italia could bring our sample to 136 firms. Macroeconomic factors could be examined in a manner similar to Patuarel, Matoussi & Jouini (2006). By observing the dispersion of capital measured by the free float, we focused on the percentage

of capital in the public. In the future, we could also observe the share in the hands of a family. Indeed, Labelle & Schatt (2005) demonstrate that companies controlled by a family tend to disclose less information because the majority of shareholders already have the information and because the family fear disclosing information to competitors.

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