

Legitimacy Theory and Internet Financial Reporting

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Abstract

The purpose of this study is to examine if the intensive pollution companies provide a higher level of internet financial reporting (IFR) and this fact is supported by the legitimacy theory.

The global environmental concerns and the responsibility of the polluter companies, leads to disclosure more information, is important to verified that disclosure, particularly the extent of IFR, it's to justify them environmental impacts but also to legitimate its openness and transparency.

We develop a set of hypotheses that relate the extent of Internet Financial Reporting with several variables. The main hypothesis is justified based on the legitimacy theory. A set of alternative hypotheses are based on the literature about voluntary disclosure of financial information and are used in order to control the competing determinants of the Internet Financial Reporting. The empirical work relies on firms listed in the London Stock Exchange belonging to the FTSE 350. Our findings show that those firms with a significant environmental impact are more likely to disclosure in their websites. However, the results also provide empirical evidence supporting the importance of the firm's size, leverage and ownership concentration as a determinant of internet financial reporting.

This study is one of the first empirical studies to investigate the relationship between pollution companies and disclose of IFR and this fact could be supported by legitimacy theory.

Keywords: Internet Financial Reporting (IFR), Disclosure, Legitimacy Theory

1. Introduction

The evolution of the communications and the global market development created new financial opportunities in the world, the internet became a user-friendly resource for disclosure companies. It's possible, at the same time, to reach users wherever they are, and they can access the information all the time.

The internet financial reporting (IFR), is an excellent deliver to disclosure financial and not financial information. However not all companies use the internet report in the same way. To the companies the cost and benefits of internet disclosure are important to develop a more efficient information strategy to the stakeholders that need useful and timely information for making their decisions.

Several studies considered different determinants of internet financial reporting, but the most referred is the companies size, in other words, the largest companies are more propensity to IFR disclosure.

There are other researchers relating determinants of internet reporting and others behaviours: dividing voluntary and mandatory reporting (Ettredge et al., 2002); continuous corporate disclosure (Decreceny and Rahman, 2005); analysing the relationship activities in corporate websites (Bollen et al., 2006) or corporate internet reporting associate to corporate governance (Abdelsalam and Street, 2007 and Kelton and Yang, 2008).

We've analysed through a checklist the characteristic of disclosure in this websites companies and showed the importance of the investor relations and the financial information.

Not only the global environmental concerns and the conscientiousness of companies but also the investors or others stakeholder, may press on greater disclosure environmental matter or the financial information.

Some studies consider the environmental impacts companies are more likely to environmental disclosure than the others industries, in this research tested if that type of companies have too a additional disclosure in the IFR. The multivariate results indicate

that industries companies who have environmental impact are more propensities to disclosure in their websites.

Other determinant of IFR that has positive influence is company size, otherwise leverage and percent of ownership concentration have negative impact. Their wasn't found significance between IFR and profitability or the Big 4 auditor.

This study is structured in sections as follow. The next section is the review of prior research of legitimacy theory and internet financial reporting and their determinants. Section 3 presents the hypothesis and its theoretical justification. The research design including the justifications of dependent and independents variables; the sample and the research model, compose the section 4. Section 5 has the results, the descriptive statistics and the univariate and multivariate analysis. To finish we have a conclusion in the section 6.

2. Literature Review

3.1 Legitimacy theory

The legitimacy theory has been widely discussed, and some authors have defined it, Suchman (1995: 574) has examined several definitions of legitimacy, since 1960 and adopt this: "Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions".

Those external perceptions about companies could be ways by the management of corporate disclosure policies (Deegan, 2002). Then the companies could have a strategy legitimacy and choice and change their legitimacy status and consequently the external perceptions (Aerts and Cormier, 2009).

Normally the legitimacy theory is used to explain social and environmental reports disclosure. But the legitimacy theory can be used in corporate report, suggested by Woodward et al. (1996), as one possible legitimacy/accountability reporting framework, to communicate with the shareholders and clarify the importance of this relationship.

Tsang (2001) has concluded that the organizational legitimacy is a useful concept to explain corporate report behaviour.

Some studies of legitimacy and annual report are for example: Ogden and Clarke (2005) explore how organizations use annual reporting for legitimacy purposes, particularly the privatised regional water in the United Kingdom (U.K.), Lightstone and Driscoll (2008) examine the symbolic manage legitimacy in quality information on the voluntary disclosure by Canadian public companies and Samkin and Schneider (2010) investigate the narrative in the annual reporting and legitimacy, of a public benefit entity, in New Zealand.

The internet and the websites companies can be considered a framework of financial reporting disclosure and a resource of promotion of the communication to investors or to another stakeholder. Legitimacy is present also in this type of disclosure and already exist some investigations.

Álvarez et al. (2008:617) studied the voluntary and compulsory information disclosed online, in Spain, particularly the industry concentration effect. They concluded that concentrated industries would rather disclosure voluntary information to “obtain legitimacy and avoid external interferences”.

Internet reporting (financial and social disclosure) in microfinance institution was analysed by Gutiérrez-Nieto et al. (2008) using the legitimacy theory as theoretical framework, but the websites of microfinance institution are scarce, consequently the levels of disclosure too and differs by country development. That information is orientated to donors and financial analysts, and many of them reside in developed countries. The social disclosure is the most important by the nature of these institutions and to establish legitimacy in the perceptions of their donors. Non-governmental organizations disclosure has less financial information that microfinance institution “apparently forgetting that their donors are also interested in financial data” (Gutiérrez-Nieto et al., 2008: 432).

Legitimacy is considered the external perceptions by the society or the stakeholders. That perception could be measure by the disclosure companies, in this study mainly by the IFR disclosure.

4.1 Internet Financial Reporting

Computer technology and the internet modify the flow of information, the corporate disclosure financial data to the different users. Then, it's possible disseminate information to the shareholders and they could be heterogeneous decision makers (Ashbaugh et al., 1999). The internet financial reporting has a considering incremental disclosure than the traditional financial reporting (Trabelsi et al., 2004). Then It's not possible to continue to treat the internet and current (physical) ways of corporate reporting like identical distribution channels of disclosure (Lymer, 1999).

The dissemination of accounting information on internet differs of a traditional financial reporting. Williams and Ho Wern Pei (1999) summarized some advantages of internet reporting: information available of 24 hours a day, in multiple languages, ability to establish one-to-one relationship with stakeholder, more speed and interactive communication, flexibility to move site to another location, lower cost of information dissemination, small firms could have international contacts, could have graphic and audio interactive. And conclude that "the companies can now address international needs, there is a potential incentive for greater harmonization of accounting disclosure practices", (Williams and Ho Wern Pei 1999: 394).

Almost all companies present financial information in their websites, and use the technologies in their benefit, with webcast or e-mail alerts they reach the investors (Allam and Lymer, 2003). The internet was used as resourceful and low-cost distribution financial corporate information, but could make possible innovation in reporting practices, using for example dynamic graphics, dynamic updates, downloads or hyperlinks (Hedlin, 1999). The new opportunities to disclosure in the internet financial report have a cost and may cause a change of the information costs. Then it's necessary to analyze de user information demands and de nonlinear consequences of the capital market (Wagenhofer, 2003).

One of the characteristic of web corporate is the link "investor relation" or "information for investors". This link normally give access to accounting reports, stock information, earnings announcement, webcasts and other information of possible interest to the shareholders, (Pendley and Rai, 2009).

The internet is a mechanism of communication of corporate financial reporting, but the investor relations dialogue remains asymmetrical in this additional medium, and do not have radically changes of its nature (Gowthorpe, 2004). The symmetrical relation investor-company in the internet was tested by Hassink et al. (2007), by the e-mail of the investor relations, but this appears relatively low, then the conclusion is similar to Gowthorpe (2004) the emphasis is in the asymmetrical relation for the company the information disseminator.

Deller et al. (1999) consider that investor relations via internet offers a variety of possibilities. The investor relations information disclosures on websites companies is increasing and growing their importance. The obligation to register in order to access the site or some information could be helpful to indentify a profile demand. Other companies disclosure the annual report in separate parts, to analyse the specifying sections are generally requested. The future investor relations function it's usefully to define the strategy and the investment of website disclosure (Rowbottom et al., 2005). The profile of financially users is characterised by investors, creditors, accounting firms and lawyers requesting considerably more the annual report than the sustainability report or other website information, (Rowbottom and Lymer, 2009).

The needs of rules to the disclosure in the internet was denoted by the regulatory authorities, prepared for the international Accounting Standards Committee (IASC) Lymer et al. (1999) analysed the internet reporting in 22 countries and in the year 2000 the FASB¹ publishing the "Electronic Distribution of Business Reporting Information".

To Xiao et al. (2002) and Lymer and Debreceeny (2003) the Internet is a rapid resource to corporate report distribution, then the professional auditing, accounting and regulators denote the importance of regulation. The internet is a potential discloser to a better and more useful financial reporting, but this disclosure is diverse (scope, quality, completeness and timeliness) and could be a problem for who uses this information. Khan (2007) suggests some recommendations to improve online financial reporting in base of qualitative characteristics² formulated by the IASB³ and considering different viewpoints: user's, regulator's and others. These recommendations intend to benefit

¹ Financial Accounting Standard Board.

² Reliability, understandability, completeness, timeliness and verifiability of information.

³ International Accounting Standards Board

process to the different decision maker's. To the Brown (2007: 42), it's necessary to join "the multinational corporations, the elite stock exchanges, the Big Four Accounting groups, the accounting standards boards, the accounting professional organizations and the universities" to the digital participatory emancipation process to define online reporting representatives from all countries.

To the European stock market, the European Commission Directive 2003/6/EC, recommends the dissemination of inside information to the public, soon as possible, but also recommend publishing in the website the information that they are required to disclose publicly.

In particular, the London Stock Exchange, the "Admission and disclosure standards" is contemplated the directive mentioned previously, also called "Market Abuse directive", and have a specific document the "Investor relation guide", which defines the guidelines for investor relations website contents and structure and some good practices. Only to the AIM (Alternative Investment Market) companies the rule 26 of "AIM rules" have the obligation to maintain a website certain information free available. Then we consider analysing inside the voluntary disclosure in the websites companies.

5.1 Determinants of Internet Financial Reporting

The contents and determinants of corporate report, still not associated to the internet, have been widely studied, for example see Lang and Lundholm (1993 and 1996), Raffournier (1995), Meek et al. (2005), Patton and Zelenka (1997), Chow and Wong-Boren (1987), Botosan (1997) or Botosan and Plumlee (2002). Some of them used the cost of capital in these analyses and several find a significant determinant the company size.

Oyelere et al. (2003: 29) analysed studies in different countries and concluded that the most identified determinants of financial reporting are: "corporate size, size of firm's auditors (e.g., Big 8/6/5 vs. non-Big 8/6/5), listing status, profitability, leverage, and industry". But there are more determinants with significant influence, like: foreign parent, country, ownership structure and liquidity, for example (Oyelere et al., 2003: table 1).

The studies are quite varied some only analyse one countries, others various, the table of content is sorted in different categories and different items to survey the extent of IFR. To analyse the determinants of IFR, the authors are testing several independent variables, but the most significant is company size. Also noted others determinants of IFR like for example: ownership structure, auditing by a Big 4, industrial sector or leverage. The table 1 show the summary of studies of determinants of IFR disclosure.

There also some others studies to research determinants in the disclosures in the websites companies, like García-Borbolla et al. (2005) Specifically to the small and medium enterprises (SME's) found significant relationships between possesses website and size, sector (services), manager's education and training, technological tradition and previous contact via the internet.

The determinants of the timeliness of corporate internet reporting (CIR) it's analysed to Abdelsalam and Street (2007), associated to corporate governance for U.K. listed companies. The CIR timeliness has negative association to the board independence, board experience (in terms of cross-directorship and length of service for executive directors) but has a positive association with board experience in terms of age directors, positive relation too with the audit fees paid and number of analysts.

To the Irish listed companies Abdelsalam and El-Masry (2008) show the evidence of board composition, ownership structure and size firms influence the timeliness of corporate internet reporting. But to the Egyptian listed companies, Ezat and El-Masry (2008) found the following significant positive determinants: company size, liquidity, ownership structure, service activity type, board composition and board size.

There are different studies of disclosure in the internet, but we propose in this study it's analyse the determinants of IFR, particularly for the pollution companies, and other explanatory variables.

Table 1 – Summary of Determinants of Internet Financial Reporting Disclosure Studies

Author(es)	Data Collection	Countries	Sample	Survey	Results
Pirchegger and Wagenhofer (1999)	Austria (1997 and 1998) and Germany (1998)	2 countries: Austria and Germany	Austria (1997-26 and 1998-20) and Germany (1998-30)	Extent of financial information on the internet	Company size (+) Only to Austria: percentage of free float (+)
Gowthorpe and Amat (1999)	July 1998	Spain	379 listed companies (70 with website and only 34 with accounting information)	Existence of website and extent of website	Electricity and gas industry (+) and banking (+) but only to existence of website
Craven and Marston (1999)	July 1998	UK	206 largest listed companies on the London Stock Exchange (153 with website and 109 with financial information)	Existence of website and extent of financial information on the internet	Company size (+)
Ashbaugh et al. (1999)	November 1997 - January 1998	US	290 AIMR (Association for Investment Management and Research), (253 with website)	Existence of website and extent of internet corporate report	Company size (assets) (+), profitability (ROA) (+) and AIMR rating (+)
Ettredge et al. (2001)	February - May 1998	US	490 companies (402 with website)	Information disclosure for investors at corporate website	Company size (+) Industry group: petroleum (+) Home building (-)

(Continued on next page)

Author(es)	Data Collection	Countries	Sample	Survey	Results
Bonsón and Escobar (2002)	July - August 2001	15 countries of European Union: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherland, Portugal, Spain, Sweden and U.K..	300 biggest companies EU (20 companies x 15 countries)	Disclosure index (Transparency index)	Company size (+); industrial sector: resources: mining and oil & gas (+); country: north and central Europe (+)
Debreceeny et al. (2002)	November 1998 - February 1999	22 countries: Malaysia, Mexico, Brazil, Chile, Italy, Spain, France, Germany, Japan, Netherlands, South Korea, Hong Kong, Singapore, South Africa, Sweden, Denmark, Norway, Australia, Canada, New Zealand, U.S. and U.K.	660 companies: 30 x 22 countries (sorted by market capitalization and listed in the DowJones Global Index)	Determinants of IFR	Presentation and Content: Size (+), U.S. listed (+). Only Presentation: level of technology employed (+) environment disclose (+) and foreign list (-). Only content: growth prospects and intangibles (-)
Lybaert (2002)	July 2000	Netherlands	188 Listed firms on the Amsterdam Stock Exchange (162 with website, 152 with financial information)	Existence of website and extent of website	Company size (+) but only to existence of website

Author(es)	Data Collection	Countries	Sample	Survey	Results
Larrán and Giner (2002)	October - November 2000	Spain	144 Madrid Stock Exchange companies (107 with website)	Disclosure index	Company size (+) (quality and quantity of financial information)
Ettredge et al. (2002)	Late 1997 - early 1998	US	220 AIMR companies (193 with website)	Information disclosure for investors at corporate website	Required and Voluntary: Size (+) Correlation between earnings and returns (-) Only Voluntary: Equity capital (+) Quality (AIMR measure)
Patten (2002)	August 2000	US	Initial 250 top companies (40 property and casualty insurance - 20 web innovator and 20 matched firm)	Financial disclosure and social disclosure	Financial disclosure: company type - publicly traded (+) Social disclosure: Size (+)
Allam and Lymer (2003)	end of 2001 and in early 2002	5 countries: U.S., U.K., Canada, Australia and Hong Kong.	250 companies (50 largest in advanced capital markets X 5 countries)	Extent of IFR	Company size (+) but only in Australia
Marston (2003)	1998 follow up in May 2001	Japan	99 leading Japanese companies	Existence of website, English website and extent of website	Company size (+) and Industry sector (+) but only to existence of website
Oyelere et al. (2003)	Annual report 1996-1998	New Zealand	229 listed companies (123 with website)	Internet financial reporting	Company size (+), liquidity (+), primary industry sector (+) and the ownership spread (+)

Author(es)	Data Collection	Countries	Sample	Survey	Results
Xiao et al. (2004)	August 2002	China	300 largest listed companies (sorted by total assents) (203 with website)	Internet-based corporate disclosures	Company size (+) information technology industry (+), legal person ownership (+), leverage (+) and state share ownership (-)
Marston and Polei (2004)	2000 (21-26 July) 2003 (25 May - 3 June)	Germany	50 companies (top quartile and bottom quartile of DAX 100)	Extent and information presentation in corporate websites 2000 and 2003	Company size (+) (in 2000 and 2003), the free float (+) (only in 2000) and foreign listing (+) (only in 2003),
Debreceeny and Rahman (2005)	January 2001 - 31 March 2002	8 countries: Denmark, Finland, France, Germany, Hong Kong, Norway, Singapore, and U.K.	333 listed companies (Denmark-13, Finland-20, France-54, Germany-46, Hong Kong-42, Norway-16, Singapore-22, and U.K.-120)	Frequency of online reporting	short-windows result: measures of asymmetry (+), earnings flag (profit vs loss) (+) and firm's analyst following (+)
Laswad et al. (2005)	Financial accounting data: 1997–1999	New Zealand	86 local authorities (61 with website and 30 with financial information)	IFR	Press visibility (+) alternative interpretation: financial leverage (+), municipal wealth (+), and council type - district councils (-)
Bollen et al. (2006)	December 2001 - October 2002	6 countries: Australia, Belgium, France, Netherlands, South Africa and U.K.	270 listed companies: Australia (40), Belgium (50), France (50), the Netherlands (50), South Africa (40) and the U.K. (40)	Quality index for investor relations websites	Company size (+), level of internationalization (foreign listing and foreign revenue) (+), proportion of shares available to individual investors (+) and disclosure environment (+)

Author(es)	Data Collection	Countries	Sample	Survey	Results
Bonsón and Escobar (2006)	February - March 2005	13 countries of Eastern Europe recently in the European Union or in process of joining: Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia and Turkey	266 companies: Bulgaria-5, Cyprus-16, Czech Republic-13, Estonia-5, Hungary-13, Latvia-6, Lithuania-14, Malta-3, Poland-74, Romania-23, Slovakia-15, Slovenia-8 and Turkey-71	Disclosure index	Company size (+), been audited for the Big four (+) and if they are in the financial sector (+)
Pervan (2006)		Croatian and Slovene	85 Listed companies: Croatian-55 and Slovene-30 (transactions valued at minimum of 300.000 €)	IFR	Croatian: size (+), profitability (+), number of shareholders (+), amount of traffic on the stock markets (+), majority foreign ownership (+) and sectors (tourism (-) and marine transport (-)). Slovene: official listing (+), proportion of market capitalization (+), ratio of market to book values of shares(+), and sector (transport (-))

Author(es)	Data Collection	Countries	Sample	Survey	Results
Momany and Al-Shorman (2006)	October 2003 - September 2005	Jordan	60 companies listed on the first market on Amman Stock Exchange (27 with website, 19 financial information)	Internet financial information vs not internet financial information	Financial information: Company size (+), leverage (+), concentrated ownership (+), international investors (+), and recent (+)
Serrano-Cinca et al. (2007)	May 2006	Spain	70 financial institutions	Internet disclosure by banks	Company size (+) financial performance (+) and internet visibility (+) (high levels of scores disclosure they call e-transparency)
Abdelsalam et al. (2007)	Mid-2005	UK	110 London listed companies (top quartile sorted by market capitalization)	Corporate Internet Reporting (CIR) Comprehensiveness	analyst following (+) director holding (-) director independence (+)
Trabelsi et.al. (2008)	September - December 2002	Canada	108 listed firms on the Toronto Stock Exchange	Additional IFR disclosure	share turnover (+), research and development expenditure (+), performance (+), profitability (-), size (+) and degree of information asymmetry (+)
Gandía (2008)	June 2003	Spain	98 non-financial companies quoted on the continuous Spanish market	Corporate governance disclose index	determinants are different by model but the most common are: the analysed following (+), listing age (-) and belong to the communication / information services sector (+-)

Author(es)	Data Collection	Countries	Sample	Survey	Results
Kelton and Yang (2008)	October - November 2004	US	284 listed companies	IFR	Corporate governance (+), block ownership (-), director independence (-), financial experts on audit committee (-), number of audit committee meeting (+), Big 4 (+) and company size (+)
Cormier et al. (2009)	2002	Canada	300 index (final sample 189 companies)	Web-based performance disclosure	Leverage (-) Beta (systematic risk) (+) access a capital markets (+) short term customer relations (-) concentration ratio (-) capital investment intensity (+) Media exposure (+) market-to-book ratios (+) Registered with the Securities Exchange Commission (+) number of employees (+)

3. Hypothesis

Environmental impact companies

The different types of industry the IFR disclosure, has been analysed by several authors, but not all found a positive association between them, like Craven and Marston, (1999). To Meek et al. (1995), to the voluntary traditional annual report disclosures, the group of oil, chemical and mining provides more than the others groups. Gowthorpe and Amat (1999) opinion the electricity and gas industry and the banking sector have the most aptness's to disclosure in the internet, However Oyelere et al. (2003) concluded this the primary industry group (oil and gas, and forestry industries). The division in the different sectors depend of data used, therefore this comparison becomes more difficult.

Comparatively to environmental disclosure, Dierkes and Preston (1977) cited by Villiers and Staden (2006) consider the modified environmental companies are more likely to environmental disclosure than the others industries. Campbel (2003, 2004) analysed the 10 U.K. companies and concluded that there two sectors that have more environmental disclosure: (1) petrochemicals and (2) chemicals and intermediates. Villiers and Staden (2006) analysed the environmental disclosure in South Africa and found that mining industries are more likely to disclosure this type of information then the Top-100 industrial industries. Cho and Roberts (2010) set "environmental sensitive industries" by primary SIC⁴ code of 10/14 (mining), 13 (oil extraction), 26 (paper), 28 (chemical, except pharmaceutical, code 283), 29 (petroleum), and 33 (metals), but don't found a significant correlation to the environmental disclosure on the internet, however found to the American's 100 toxic firms.

These studies demonstrate that there is more environmental disclosure to the polluter companies, in some cases, justified to the legitimacy theory, in this research will be tested if that type of companies has additional disclosure in the IFR.

Whereas companies with environmental impacts provide more financial information on the internet for its stakeholders, we analyse the industries that are considered to have a strong environmental impact.

⁴ Standard Industrial Classification (SIC)

To this study consider two impact environmental industries: (1) air and (2) land.

The first are the industries which “ozone pollution intensive” (Greenstone, 2002 and List et al., 2004) they are considered in the Standard Industrial Classification (SIC) codes: 2611-31 (Pulp and Paper Mills), 2711-89 (Printing and Binding), 2812-19 (Industrial Inorganic Chemicals), 2861-69 (Industrial Organic Chemicals), 2911 (Petroleum Refining), 30 (Rubber and Misc. Plastics), 32 (Stone, Clay, and Glass), 3312-3 (Steel and Electrometallurgical Products), 3321-5 (Iron and Steel Foundries), 34 (Fabricated Metal Products), and 371 (Motor Vehicles and Equipment). These industries are considered “ozone pollution intensive” because “they emit at least 6% of the total industrial sector’s emissions of nitrogen oxide or volatile organic compounds, the primary chemical precursors to ozone” (List et al., 2004: 308).

In the second group, consider the land impact environmental, i.e. the depletion of natural resources, the mining and extractive industries, which the SIC codes are 10/12/14 (mining) and 13 (extractive).

Is expected in this study to find a positive association between impact environmental industries (air and land pollution)⁵ and disclosure of IFR. So, will be split in two hypotheses:

H_{1a}: There is a positive association between air impact environmental industries and disclosure of IFR.

H_{1b}: There is a positive association between land impact environmental industries and disclosure of IFR.

Company size

The company size is the most common determinant to explain IFR than other statement. Several authors found a positive association between the size and the internet disclosure, Craven and Marston, 1999; Pirchegger and Wagenhofer, 1999; Debreceny

⁵ To the water pollution is not possible constructed one variable, because the SIC codes repeat by air and land pollution, (water pollution SIC codes available in Wiemhoff, 1999).

et al., 2002; Bonsón and Escobar, 2002; Larrán and Giner, 2002; Geerings et al., 2003; Oyelere et al., 2003; Marston and Polei, 2004; Xiao et al., 2004; Pervan, 2006; Bollen et al., 2006 and Kelton and Yan, 2008.

The large companies have more incentives to disclosure in the internet, have more visibility and so draw bigger attention from the general public, government, shareholders, others stakeholders or even the competition. The cost and benefits to the large companies are more easily managed because they have more users and it's easier to communicate by internet. The large firms have further resources to have information strategy more efficient and have additional disclosure in the internet. Therefore, is expected the large companies to have additional propensity to IFR disclosure, and the second hypothesis is:

H₂: There is a positive association between company size and disclosure of IFR.

Profitability

The profitability is one of significant determinants of financial reporting disclosure in the compilation of studies by Oyelere et al., (2003) and Pervan (2006) found a positive correlation, too.

Companies with high levels of profitability improved influence in investor decision and have more interesting stakeholders, so there is a higher propensity to IFR disclosure. Is expected a positive association between profitability and disclosure in the IFR, then we have the follow hypothesis:

H₃: There is a positive association between profitability and disclosure of IFR.

Leverage

To Xiao et al. (2004) the leverage has a positive association with the corporate disclosure, but there could have a negative association, even though leverage can be considered a measure of performance disclosures determinants (Cormier et al., 2009).

Leverage is the amount of debt used to finance a firm's assets. Companies with high levels of leverage have more financial costs, and the suppliers of capital (debtholders) concerns to the interest them the financial information. A negative relationship is expected between leverage and disclosure of IFR, and has the hypothesis:

H₄: There is a negative association between leverage and disclosure of IFR.

Ownership concentration

Abdelsalam et al. (2007), divided the ownership concentration in (1) percent of stock held by major shareholders (2) percent of stock held by directors, and only in the second found a negative association to the corporate internet reporting. But in the other study Ashbaugh et al. (1999) used the percentage of equity shares held by individual investors, but only in the retail industry, has a significant influence to the IFR. Pervan (2006) founded correlation between voluntary IFR and number of shareholders.

In this study the ownership concentration could be representing or for a percent of stock held by major shareholder or percent of director interests. The companies have more ownership concentration, have less probable stakeholders, then the IFR disclosure will be to a less user. Is expected when the percent of ownership concentration is greater the lower is disclosing in of internet financial reporting, then we have the follow hypothesis:

H₅: There is a negative association between ownership concentration and disclosure of IFR.

Auditing by Big 4

This variable is not often used but Bonsón and Escobar (2006) and Kelton and Yan (2008) found a positive association of firms auditor's and internet report disclosure.

The auditor's firm cooperates and supervises the process financial reporting, leading to increased disclosure transparency and good reputation to the financial Report (Debreceeny and Gray, 1999). The companies auditing by a Big 4, will be influenced by a stringent standards financial accounting disclosure. Is expected the companies auditing by the "Big Four" have additional disclosure in IFR, so the sixed hypothesis is:

H₆: There is a positive association between the companies auditing by the "Big 4" and disclosure of IFR.

4. Research design

4.1. Dependent variable

The dependent variable is directly observed by visiting and explores the corporate website. A checklist's of characteristics was employed by other authors to analyse the disclosure companies websites, Pirchegger and Wagenhofer, 1999; Ettredge et al., 2002; Allan and Lymer, 2003; Geerings et al., 2003; Lymer and Debreceeny, 2003; Marston and Polei, 2004; Xiao et al., 2004; Bonsón and Escobar, 2006 and Bollen et al., 2006. In this study the sample is composed by the listed companies using the IASB normative, so isn't necessary to check the financial statements contained in the IAS 1⁶, consequently the list of characteristic are more simplified.

The companies websites have continuous evolution, so the data collection was done in shortest time possible, from February to June of 2010.

⁶ IAS 1 – International Accounting Standard 1 – Presentation of Financial Statements

The characteristics of internet financial report (IFR) disclosure and their scoring is defined in table 2, and they are classified in four categories:

- Information on the first page of the corporate website (IFR1P).
- Investor Relations on the internet (IFRINV).
- Annual Report on the internet (IFRAR).
- Other information on the internet (IFROI).

The sum of these four categories is the internet financial reporting disclosure in the FTSE- 350 (IFR-FTSE), equation 1:

$$\mathbf{IFR-FTSE} = \mathbf{IFR1P} + \mathbf{IFRINV} + \mathbf{IFRAR} + \mathbf{IFROI} \quad (1)$$

Table 2 – Dependent variable definition and measurement

First page	
Link to "Investor Relations" or "Investor" or "Shareholder information" in the 1° page	1 if have a link, and 0 otherwise
Lasted New in the 1° page	1 if have Last New in the 1° page, and 0 otherwise
IFR1P	The sum of scores of the above 2 characteristics
Investor (Contacts, E-mail alert and FAQ)	
Investor Relations Contacts	1 if have a investor relations contacts, and 0 otherwise
Investor E-mail alert (news)	1 if is possible subscribe a Investor E-mail alert, and 0 otherwise
Investor FAQ (frequently asked questions)	1 if have FAQ, and 0 otherwise
IFRINV	The sum of scores of the above 3 characteristics
Annual report	
Download the annual report of the year	1 if is possible download the annual report of the year, and 0 otherwise
Download the annual report the last 3 years	1 if is possible download the annual report of the last 3 years, and 0 otherwise
Download the financial statement separately in PDF format	1 if is possible download the financial statement separately in PDF format, and 0 otherwise
Download the financial statement separately in Excel format	1 if is possible download the financial statement separately in Excel format, and 0 otherwise
IFRAR	The sum of scores of the above 4 characteristics
Other information	
Financial Calendar	1 if have a financial calendar available, and 0 otherwise
Share price information	1 if have a share price information available, and 0 otherwise
5 Year Summary (Financial ratios, key statistics, or other information presented apart from the annual report)	1 if have a 5 year summary, and 0 otherwise
IFROI	The sum of scores of the above 3 characteristics
IFR-FTSE	IFR1P + IFRINV + IFRAR + IFROI

4.2. Independent variables

The independent variables were collected in the Financial Datastream database for the year 2009.

The explanatory variables are associated to the hypotheses in test. To the hypothesis 1 we have two different variables because considered one variable to the air impact environmental industries and other to the land impact environmental industries, to the others hypotheses have only one explanatory variable.

H₁ – *Pollution Industries* – the different types of industry is division based the Standard Industrial Classification (SIC) Codes. (H_{1a}) There was constructed a dummy variable for the air intensive pollution industries (APII) based on Greenstone (2002) and List et al. (2004), by the following SIC codes: 2611-31, 2711-89, 2812-19, 2861-69, 2911, 30, 32, 3312-3, 3321-5, 34, and 371. (H_{1b}) To the land environmental impact companies there was constructed another dummy variable included at SIC codes 10/12/13/14, i.e. the mining and extractive industries (MEI).

H₂ – *Size company* – Several authors using the company size and are the most significant explanatory variable. The measure more utilised is the logarithm of market capitalization and in this study used too. (Size)

H₃ – *Profitability* – For this ratio normally is used the Return of Equity (ROE) or Return on Assets (ROA). In this study we will utilise the ROA by a measure of profitability (PROF).

H₄ – *Leverage* – The measure used in this study are the common equity to total assets ratio (LEV).

H₅ – *Ownership Concentration* – Percent of the major shareholder, could be representing for a director interests or a extern individual investor or a company or a company group (OC).

H₆ – *Big 4 Auditor* – To analyse de auditor used a dummy variable: 1 if the auditor is KPMG or PriceWaterhouseCoopers or Deloitte Touche Tohmatsu or Ernst & Young, and 0 otherwise (B4AUD).

4.3. Research Model

To test the hypotheses and estimate the fixed effects we used the research model specified in the following equation:

$$\begin{aligned} \text{IFR-FTSE} = & \beta_0 + \beta_1 (\text{AIPI}) + \beta_2 (\text{MEI}) + \beta_3 (\text{Size}) + \beta_4 (\text{PROF}) + \beta_5 (\text{LEV}) \\ & + \beta_6 (\text{OC}) + \beta_7 (\text{B4AUD}) + \xi \end{aligned} \quad (2)$$

Where:

β_0 - Intercept

AIPI - Air intensive pollution industries

MEI - Mining and extractive industries

Size – Company size

PROF – Profitability

LEV – Leverage

OC – Ownership concentration

B4AUD – Big 4 auditor

ξ - Residual

4.4. Sample and Data

The data was collected for listed companies in FTSE-350, using the official website of London Stock Exchange⁷, in February 2010.

From the original sample there were removed the firm's that don't employ the IASB/IFRS⁸ normative (using this information in the Financial DataStream and confirmed in the last annual reporting available in the correspondent corporate website) or don't have information on Financial DataStream, in the year in analyse (2009). The final sample is constituted to 316 valid firm's observation. A list of sample companies is available from the authors.

⁷ <http://www.londonstockexchange.com>.

⁸ IASB (International Accounting Standards Board) /IFRS (International Financial Reporting Standards)

5. Results and Discussion

5.1. Descriptive Statistic

The table 3 contains the descriptive statistic of the dependent and the independents variables.

The variable size, profitability and leverage are absolute continuous variables, the ownership concentration are continuous percentage variable and the others are dummy variables, (independent variables in table 3).

The characteristic of IRF-FTSE assists between 2 and 12, being 12 the maximum value possible and the mean are 8.43, (dependent variable in table 3).

Table 3 – Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
<u>Dependent Variable</u>					
IFR-FTSE	316	2	12	8,43	1,834
<u>Independent variables</u>					
SIZE	316	10,88	18,63	13,8543	1,48024
PROF	316	-36,16	75,09	5,3003	9,80995
LEV	316	-26	100	40,51	24,659
OC	316	0,03	77,01	15,9978	12,89778
B4AUD	316	Audit by a Big 4 : 305 (96,5%) Not audit by a Big 4: 11 (3,5%)			
AIPI	316	Air intensive pollution industry: 22 (7%) Not air intensive pollution industry: 294 (93%)			
MEI	316	Mining and extractive industries: 31 (9,8%) Not Mining and extractive industries: 285 (90,2%)			
<u>Variable definitions</u>					
IFR-FTSE	Proportion of internet financial reporting in FTSE-350				
SIZE	Company size - Natural logarithm of market capitalization				
PROF	Profitability - Return on Assets (ROA)				
LEV	Leverage - Common equity to total assets ratio				
OC	Ownerships concentration - Percent of major shareholder				
B4AUD	1 if audit by Big 4 and 0 otherwise				
AIPI	1 if is air intensive pollution industry and 0 otherwise				
MEI	1 if is mining and extractive industries and 0 otherwise				

The most common characteristic of IFR in the FTSE-350 is the Download the annual report of the year (99,7%), but only 16,1% provide the download of the financial statements separately in Excel format. The relationship to the investor tend to be facilitated in 92,1% of the web companies with a link in the first page. And 250 companies have in website a contacts specific to the investors. In this study only have listed companies, being normal the share price information have adequate importance, available in 307 website's firm (Table 4).

There are other studies in other countries, but let's compare with Deller et al. (1999) used the FTSE 100 in U.K., there is a increase in IFR disclosure. Examples of this increase are, corporate with homepage (85% - 100%); Download the annual report (35% - 99,7%) and Share price information (29% - 97,2%).

Table 4 – Frequency of characteristic of internet financial reporting

First page	Abs.	%
Link to "Investor Relations" or "Investor" or "Shareholder information" in the 1° page	291	92,1%
Lasted New in the 1° page	243	76,9%
Total of IFR - 1ª page (IFR1P)	534	84,5%
Investor (Contacts, E-mail alert and FAQ)		
Investor Relations Contacts	250	79,1%
Investor E-mail alert (news)	217	68,7%
Investor FAQ (frequently asked questions)	163	51,6%
Total of IFR – Investor (IFINV)	630	66,5%
Annual report		
Download the annual report of the year	315	99,7%
Download the annual report the last 3 years	296	93,7%
Download the financial statement separately in PDF format	124	39,2%
Download the financial statement separately in Excel format	51	16,1%
Total of IFR – Annual report (IFRAR)	786	62,2%
Other information		
Financial Calendar	284	89,9%
Share price information	307	97,2%
5 Year Summary (Financial ratios, key statistics, or other information presented apart from the annual report)	123	38,9%
Total of IFR – Other information (IFROI)	714	75,3%
IFR-FTSE	2.664	70,3%

Allam and Lymer (2003) and Bollen et al. (2006) have studies of characteristics of IFR and investor in U.K., but the samples are only 50 and 40 largest companies, respectively. And Gowthorpe (2004) examine the voluntary reporting in the internet but to the smaller listed companies.

5.2. Univariate Analyses

The table 5 has the correlations between the independent variables and the variable dependent IFR-FTSE and their respective four categories of the characteristic, namely the IFR-1^a page; IFR-Investor; IFR-annual report and IFR-other information.

The independent variable leverage shows a significant relationship to the IFR in the FTSE-350, but to the four categories of characteristics. The variable size has a highly correlation, (0,01 level), whit the IFR in the FTSE-350 but to the information of investor (IFR-Investor) and the disclosure of the annual report in the internet (IFR-annual report). It appears that IFR-FTSE are a highly significance relationship, (0,01 level), to the variables independents: air impact pollution intensive, size, leverage and ownership concentration.

Table 5 – Correlations between characteristic of IFR-FTSE and variables independents

	IFR-FTSE	IFR-1 ^a page	IFR-Investor	IFR-Annual report	IFR-Other information
APII	0,147**	0,058	0,116*	0,135*	0,009
MEI	0,017	0,130*	0,021	-0,003	-0,064
SIZE	0,353**	0,103	0,270**	0,358**	0,087
PROF	-0,005	0,030	0,017	-0,032	0,019
LEV	-0,316**	-0,143*	-0,248**	-0,177**	-0,221**
OC	-,220**	-0,104	-0,081	-0,176**	-0,130*
B4AUD	0,087	0,007	0,065	0,117*	0,020

Spearman correlation.

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

5.3. Multivariate Regression Analyses

In table 6 there are the multivariate regression results using the equation (2), and estimate the coefficients and corresponding t-value.

Table 6 – Multivariate regression results

Hypotheses	Variable	Coefficient	t-value	Sig.
	(Constant)	6,039	5,760	0,000**
H _{1a}	APII	0,821	2,305	0,022*
H _{1b}	MEI	0,872	2,652	0,008**
H ₂	SIZE	0,260	3,994	0,000**
H ₃	PROF	-0,010	-1,045	0,297
H ₄	LEV	-0,027	-6,998	0,000**
H ₅	OC	-0,025	-3,361	0,001**
H ₆	B4AUD	0,191	0,385	0,701
R ²				0.264
Adjusted R ²				0.247
F value				15.784
Sig.				0.000**

** Significant at the 0.01 level.

* Significant at the 0.05 level.

The model is significant (0,01 level) and the adjusted R² are 0,247.

The independent variables having significant results (0,01 level) are size (H₃), leverage (H₄) ownership concentration (H₅) and mining and extractive industries (H_{1b}). The significant results (0,05 level) are air intensive pollution industries (H_{1a})

Hypothesis 1 – IFR disclosure has positive significant association to the industries with environmental impacts.

H_{1a} - The industries considered air intensive pollution have additional IFR disclosure. Similar of the results of Ettredge et al. (2001) they sorted accounting means points by industry and the petroleum are the first.

H_{1b} -The mining and extractive industries are related to the IFR disclosure. Parallel of the results of Oyelere et al. (2003) then demote the primary industry group determinant of IFR, and the sort accounting means points by industry, in the research of Ettredge et

al. (2001), the precious metals – mining are the seventh, also the results of Bonsón and Escobar (2002) the sector “Resources: Mining and Oil & Gas” have the most higher internet disclosure mean.

Similar at environmental disclosure (Campbel, 2003, 2004; Villiers and Staden, 2006 and Cho and Roberts, 2010) the pollution companies are more likely to IFR disclosure.

The pollutions companies, have in general, negative society perception, and probably these companies, whose operations have more impacts in the environment, disclosure more information, in this case IFR, for justify these impacts but also to legitimate its openness and financial information transparency.

Hypothesis 2 – The size companies has positive and significant association to the IFR disclosure. Consistent to others studies, the largest companies have additional disclosure in IFR (Craven and Marston, 1999; Pirchegger and Wagenhofer, 1999; Debreceeny et al., 2002; Bonsón and Escobar, 2002; Larrán and Giner 2002; Geerings et al., 2003; Oyelere et al., 2003; Marston and Polei, 2004; Xiao et al., 2004; Pervan, 2006; Bollen et al., 2006 and Kelton and Yan, 2008). The largest companies normally have more and diversify stakeholders, the IFR disclosure is useful to the management cost and benefits for strategy communications.

Hypothesis 3 – Predict the profitability, as measure of performance companies, has a positive correlated to IRF disclosure. In the FTSE-350 there wasn't found a significant result for support this hypothesis. Consistent to Xiao et al. (2004), and they used the same measure (ROA) for the profitability, the results is not significant to the voluntaries internet-based disclosure. Probably, different companies have divergent composition of the assents and that can be short or long term.

Hypothesis 4 – The leverage has a negative and significant association to the IFR disclosure. These indicate that higher levels of leverage consequence in lower IFR disclosure, possible that companies increase interest for debtholders. Consistent to Cormier et al. (2009) leverage has negative and significant to the websites disclosure corporate.

Hypothesis 5 – The ownership concentration has a negative and significant association to the IFR disclosure. Ownership concentration in the FTSE-350 is the percent of stock held by major shareholder or percent of director interests, show higher level of percent of ownership concentration and lower IFR disclosure. Probably because, if the percent of major shareholder is higher the dispersion of capital is lower, so the disclosure has less potential users. Consistent to Abdelsalam and Street (2007) find a negative significance to block ownership (number of major shareholders).

Hypothesis 6 – Predicted that the Big 4 audit has a positive and significant association to the IFR. In the FTSE-350 there wasn't found a significant result for support this hypothesis. Consistent to Trabelsi et al. (2008), they don't found a significant association with companies audited by one of the Big 4 and incremental voluntary disclosure on corporate websites. This result may be justified by de fact, that the sample has only has 3,5% the companies not auditing by Big 4.

6. Conclusions

This study analyses the characteristic and the determinants of the disclosure of IFR companies of FTSE-350, London Stock Exchange. From one checklist of 12 points subdivided by: first page, investor relation, annual report and other information examined in the websites companies contend. We verified the importance of investor relations and the download of annual report.

The multivariate analyses shows a positive significant related, to the companies have environmental impact disclosure more financial reporting in their websites, this fact is consistent to the legitimacy theory.

The largest companies disclosure more IFR but with leverage and ownership concentration we found a negative significant association.

Some limitation should be considered, the 12 points of the characteristics websites, could not be enough to define some companies and only analyse the U.K. companies. To future research predicts increase the characteristics of websites and analyse comparatively to other country.

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