

The influence of cultural differences
on Corporate Internet Reporting
in three Western European countries :
a preliminary study

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ABSTRACT

Previous research suggests that there is a rather heterogeneous use of the Internet as an instrument for investor relations and corporate reporting between companies and between countries. In this paper we investigate whether these differences in Internet reporting policies might be due to cultural differences in corporate reporting. According to Hofstede (1980) and Gray (1988), there are cultural differences between distinct groups of countries in Europe.

The accounting frameworks of European countries are merely classified as more developed Latin (e.g. Belgium, France), Anglo (e.g. UK, Ireland), Germanic (e.g. Germany, Austria) and Nordic (Netherlands, Denmark). Since corporate reporting on the Internet is typically voluntary, the secretiveness of these different cultural groups may influence Internet reporting practices. Also other culturally related factors like the judicial system (code vs. common law), the shareholder vs. stakeholder approach, ... may influence Internet reporting practices.

Our sample of 60 companies from the UK, Belgium and Germany tries to give an indication of the main cultural spectrum of Western Europe. All companies are analysed by visiting their websites – if present and traceable. A prior-tested list of website features and reporting contents is used in order to determine the factors that influence Corporate Internet Reporting.

The results of this study might be useful to standardising committees who consider regulating the Internet corporate reporting scene and to all other interested parties. Corporations considering to establish a website for corporate internet reporting may also find useful information in this study.

INTRODUCTION

In recent years many publicly quoted companies have adopted the internet as a new channel to inform current and potential investors about their financial performance. In the rest of this paper we will refer to this concept by the term “Corporate Internet Reporting (CIR)”. Our definition of CIR is based on, and adapted from, the “Internet Financial Reporting (IFR)” definition of Ashbaugh et al. (1999). We define a company to be engaging in CIR when its website provides either (1) a (comprehensive¹) set of financial statements or (2) a hyperlink to its annual report elsewhere on the internet. However, this is only a basic requirement and this study uses a broader definition that also considers the reporting of (non-)financial information that is not normally incorporated in the annual report.

CIR can be used as an instrument for investor relationship management to a greater or lesser extent, as discerned by Lymer (1999). The use of CIR varies on a continuum from the first generation websites – providing only (incomplete) financial information – over the second generation websites containing also non-financial data, business strategies and press coverage, up to the rather experimental third generation websites that provide real-time content and enable investors to exercise owner-rights² (Lymer, 1999).

This paper investigates whether between-country differences in CIR are due to cultural differences in reporting practices as conceptualised by Gray (1988) and Hofstede (1980). This paper does not directly look into the large number of CIR related topics such as regulation, standardisation, verifiability and reliability, etc. However, it might indirectly contribute to the understanding of the international dimension of the above-mentioned topics and shine some light on the feasibility of standard setting and regulation.

Choi (1973) stated that corporate disclosure – and hence Corporate Internet Reporting - may be affected both by forces of supply and demand for information in the capital markets and by legally administered minima, such as prescribed information requirements contained in various forms of legislation. Only when the market does indeed provide some freedom of choice, there is a possibility for enterprise actions to be a reflection of free market response.

¹ Including the notes to the accounts and the auditors’ report

² The above-mentioned website features are for illustrative purposes only and by no means tend to be exhaustive

Corporate Internet Reporting is merely unregulated³ and voluntary. This makes it an interesting item of reporting practices to study. In fact CIR is two-fold voluntary :

- (1) it implies a voluntary choice of an additional reporting medium (with additional features, e.g. hyperlinks) for the regulatory required disclosures - or only selected items of these - and
- (2) it enables the company to make additional (voluntary) disclosures in a cost-effective way to a large public.

Notwithstanding CIR is merely unregulated, it is constrained by existing disclosure regulations. The Toronto Stock Exchange (1999) stresses in its guidelines the fact that companies are not allowed to release price-sensitive (new) information on the Internet without first making an announcement to their stock exchange. This can be generalized to almost all stock exchanges or regulating bodies.

An extensive literature and a number of theories exist to explain company voluntary disclosure. The theories include agency theory and signalling theory. They may also be relevant to the issue of CIR.

According to the signalling theory, one could expect that only high quality firms use the internet as a medium to publish accounting information. Or at least we could expect that high quality firms would provide more “content” or more “features” on their websites. Disclosure reduces the information asymmetry towards potential investors, which alleviates the adverse selection problem (Mas-Colel et al., 1995). Low quality firms might prefer restricting access to accounting data to the more determined users. Craven and Marsten (1999) note : *“The very use of the internet might itself be a signal of high quality. It implies that the firm is modern and up to date with the latest technology rather than old and conservative.”*

Agency theory explains the use of voluntary disclosure through the contracting process. Jensen and Meckling (1976) define an agency relation as “ ... a **contract** under which one or more persons [the principal(s)] engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent.”

³ Despite several “codes of conduct” and “guidelines” there is still no legally binding regulatory framework for reporting financial information on the internet

Under the assumption that both parties are utility maximizers and that the agent's actions are not observable by the principal, it is quite likely that the agent will not always act in the principal's best interest. Typical reasons for conflict of interest include (1) effort aversion by the agent, (2) the agent can divert resources for his private consumption or use, (3) differential time horizons or (4) differential risk aversion on the part of the agent (Lambert, 2001).

This phenomenon gives rise to “agency costs”, which can be broken down into : (1) the monitoring expenditures by the principal, (2) the bonding expenditures by the agent and (3) the residual loss⁴. These agency costs are the price that is being paid for the “separation of ownership and control” (Jensen and Meckling, 1976).

The principal-agent models suggest that the principal (e.g. the shareholder⁵) designs a compensation contract based on observable and enforceable performance measures to align the incentives of the agent (e.g. executive) with those of the principal. The classic set-up models a risk averse agent taking unobservable actions which influence the statistical distribution over observable performance measures. These distributions are parameterised by the agent's unobservable actions, but do not perfectly reveal the actions. (Bushman and Smith, 2001)

These contracts frequently require entrepreneurs to disclose relevant information – (accounting) data on these performance measures – that enables investors to monitor compliance with the contractual arrangements and to evaluate whether the managers have used the firm's resources in the interest of external owners (Healy and Palepu, 2001). Accounting plays a role in these systems and thus is a part of the firm's efficient contracting technology (Watts and Zimmerman, 1990). CIR can enhance this monitoring role of accounting by providing investors with easier, faster and more cost-effective access to accounting data on corporate performance.

⁴ The residual loss is defined as the reduction in welfare due to imperfect monitoring and bonding instruments.

⁵ The shareholder could also delegate this function to the board of directors

Voluntary disclosure choices and CIR practices are related to their perceived costs and benefits by managers. As discussed before, these benefits are likely to be higher for high quality firms and firms with higher agency costs. The costs related to disclosure and CIR may be the cost of competitive disadvantage and the cost of data collection and processing. The latter can to a large extent be assumed to be fixed, and thus decreasing in firm size (Craven and Marston, 1999).

A number of theories also have been developed to study the economic consequences of voluntary disclosure. Healy and Palepu (2001) give an overview of three types of capital market effects of disclosure : improved stock liquidity which is associated with an increased institutional ownership, a reduced cost of capital due to a lower information risk and increased information intermediation (i.e. analyst following). Disclosure and CIR also has a marketing aspect by improving the image/reputation of the company (Gray and Roberts, 1989 by Craven and Marston, 1999)

Xiao et al. (1996) developed a framework to investigate the impact of IT on corporate financial reporting, analogous to the contingency theory of organisations. They state that the impact of IT on corporate financial reporting is contingent upon environmental, organizational and managerial characteristics.

Applying this framework to CIR, we confine our research to the impact of IT on external reporting. We then mainly focus on the communicative dimension of IT and not (or only to a lesser extent) on its information processing dimension⁶. Our study investigates the impact of the cultural, institutional, and organizational context on CIR.

Pirchegger and Wagenhofer (1999) distinguish three categories of research into Corporate Internet Reporting. The first category merely describes current practices of CIR. The second category studies cultural differences in CIR of firms located in different countries. The third category investigates specific company characteristics determining CIR practices. This study contributes to all categories of CIR research, and in particular to the second and third category.

⁶ The provision of accounting data on company websites which can be downloaded to be imported in spreadsheets or other programs to customize the reporting format or improve the data analysis are indirectly related to the information processing aspect of IT. However, even here the communicative dimension of the data transfer comes first.

This paper studies the CIR practices of the 20 largest non-financial (i.e. no banks and insurance companies), domestic (i.e. no foreign multinationals) companies on three European stock exchanges (Euronext Brussels, the London stock exchange and the Frankfurt Stock Exchange), and reports descriptive statistics on different aspects of current CIR practices ⁷.

Moreover, this research compares the CIR practices in three Western European countries – Belgium, Germany and the UK – that are culturally different. According to Hofstede (1980) Germany belongs to the Germanic group, the UK belongs to the Anglo group, whereas Belgium belongs to the more developed Latin group. The legal systems in these three countries show also a wide diversity.

Furthermore, this paper also takes into account company specific characteristics like international scope, ownership structure and leverage. We also control for company size, industry and possible technology factors.

THEORY AND HYPOTHESES

In the following sections we develop a model to link environmental socio-political factors and market forces to Corporate Internet Reporting practices.

1. Socio-political environmental aspects influencing CIR practices

1.1. The impact of culture on CIR

Comparative accounting research has shown that there are fundamental differences in corporate reporting practices between countries. For an extensive review of these topics we refer to Nobes & Parker (2000). Gray (1988) recognised culture as an explanatory factor for the international differences in accounting systems.

Based on Hofstede's (1980) dimensions of culture (individualism, power distance, uncertainty avoidance and masculinity), Gray (1988) developed the causal chain to relate these cultural dimensions to accounting values (authority : professionalism vs. statutory control,

⁷ Detailed information on the sample can be found in appendix A, table A.2

enforcement : uniformity vs. flexibility, measurement : conservatism vs. optimism and disclosure : secrecy vs. transparency), which in turn determine reporting practices.

According to Gray's (1988) topology of measurement and disclosure, countries having an Anglo culture report most optimistic and transparent. More developed Latin countries on the other hand are very conservative in their reporting and tend to be more secretive in their disclosures. Germanic countries are highly secretive and their measurement practices are situated in between those of the Anglo and Latin groups.

The theory of cultural influences on accounting values has been tested by Gray and Vint (1995). Their research showed that significant correlations exist between the cultural dimensions and the average disclosure score of each country's companies. Zarzeski (1996) also finds evidence of Gray's (1988) theory of cultural influence upon accounting, that the secretive nature of a culture relates to the level of accounting disclosures. Salter and Niswander (1995) too showed that Gray's (1988) culture-accounting theory explained financial reporting practices. Vanstraelen, Zarzeski and Robb (2001) as well found that culture was a significant factor explaining non-financial disclosures.

These studies have shown that culture influences the reporting requirements and practices on traditional reporting media. We expect that the impact of the secretiveness of a culture on reporting practices will be even more pronounced for CIR practices, since this is both an unregulated and two-fold voluntary activity.

Flynn and Gowthorpe (1997) examined differences in the use of internet reporting by the hundred largest Fortune 500 companies. They used the framework of Yoshimori (1995) who classified corporations from a stakeholder perspective into Monistic, Pluralistic and Dualistic. They found some evidence to support the idea that “ ... *companies develop their voluntary reporting practices in different ways according to the economic and cultural background in which they are grounded.* ”

The dualistic group of companies – merely French, Italian and German companies – showed large intragroup differences in internet reporting quality. This is what we would expect from the culture-accounting theory of Gray (1988), who identified the more developed Latin group (France, Italy) and the Germanic group to be relatively similar to each other regarding authority and enforcement but different regarding to measurement and disclosure.

This leads us to formulating following hypothesis :

Hypothesis 1: **The level of CIR is different across companies in Belgium, Germany and the UK**

We use the hypotheses formulated by Gray (1988) to relate the cultural dimensions of a country to information disclosure and CIR.

Uncertainty avoidance signifies the degree to which members of a society can accept uncertainty and ambiguity (Gray, 1988). Companies in strong uncertainty avoidance countries are less likely to disclose information to the public because more certain, private relationships exist, e.g. bank financing and closely-held company ownership (Zarzeski, 1996). Restricting information disclosures avoids conflict and competition and hence preserves security (Gray, 1988). Companies from weak uncertainty avoidance countries have incentives to disclose more public investor-oriented information to compete in open market settings (Zarzeski, 1996).

Hypothesis 1a: **The level of CIR is higher in weak uncertainty avoidance countries.**

Power distance is the extent to which the members of a society accept that power in institutions and organisations is distributed unequally (Gray, 1988). High power distance societies are likely to have developed businesses and related institutions that discourage extensive sharing of information. Firms in low power distance countries may face demands for higher levels of disclosure (Zarzeski, 1996).

Hypothesis 1b: **The Level of CIR is higher in low power distance countries.**

Individualism represents the degree of separateness within a society. Collectivist societies may have fewer incentives to disclose information, since families and in-groups foster secrecy. Individualistic societies are expected to disclose more information, due to the absence of secretive business relationships (Zarzeski, 1996).

Hypothesis 1c : **The level of CIR is higher in individualistic countries.**

Masculinity stands for the societal preferences for achievement, heroism, assertiveness, and material success. The opposite, Femininity, stands for a preference for relationships, modesty, caring for the weak, and the quality of life (Gray, 1988). Masculine countries are likely to be more growth-oriented and more competitive. To compete cost effectively in the business world, companies from masculine countries have incentives to disclose higher levels of information (Zarzeski, 1996).

Hypothesis 1d : **The level of CIR is higher in masculine countries.**

1.2. Legal system

The impact of culture on the societal values and accounting values as a sub-group has been discussed in the previous section. Besides the direct interaction of societal values on the corporate reporting process, there are also societal institutions that impact corporate reporting in a direct or indirect way. These institutions - the judicial system, social groups, educational groups, etc. – are the result of socio-political forces (Jaggi and Low, 2000).

The legal system (LS) is the most important societal institution for this study, since it is the most relevant for business activities. Legal experts have classified LSs into two major families : civil law and common law systems. Civil law is often referred to as code law.

Code law originated in Roman law. It is based on statutes and comprehensive codes and is formed by the opinions of legal scholars. Code law systems are further classified into three families : French-origin, German-origin and Scandinavian-origin.

Common law started with the law of England. It is formed by the opinions of judges on specific disputes. Precedents of judicial decisions form the basis for this type of law. The UK, US, Canada, Australia, ... belong to common law countries (La Porta et al., 1998).

LSs can influence corporate (internet) reporting practices directly through companies acts or accounting regulations. Tax laws also have an impact on reporting, especially in code law countries. Indirectly, and perhaps most important, LSs influence corporate (internet) reporting

through the difference in legal protection rights provided to investors and creditors. (Jaggi and Low, 2000). La Porta et al. (1998) found clear distinctions between the different law families concerning shareholders rights, creditor right and law enforcement. They found that common law countries offer the best legal protection whereas French-civil law countries offered the least legal protection. German-civil law countries are situated in between, but are closer to the French-civil law tradition.

Ball, Kothari and Robin (2000) state : *“Compared to code law governance, board members are less likely to hold large blocks, there is more monitoring of managers by external debt and equity (including analysts), and lenders and employees seldom have board representation. We hypothesize that, because parties contracting with the firm operate at greater “arm’s length” from managers, information asymmetry in common-law countries is more likely to be resolved by timely public disclosure.”* Relations between principals and agents tend to be closer in code law countries, due to a smaller number of agents. This favors the sharing of private information opposed to the public disclosure.

La Porta et al. (1998) found that good accounting standards and shareholder protection are associated with a lower concentration of ownership. This increases the demand for corporate disclosures, as will be motivated in the section on ownership structure further on.

This leads us to formulating following hypothesis :

Hypothesis 2 : **The level of CIR by firms in common law countries is higher than that in code law countries.**

Besides these environmental, socio-political dimensions that influence accounting practices in general, other more company specific factors may have an impact on CIR. Many company specific factors, however, are also determined to some extent by the previous forces. Some of these company factors will be integrated in our model as explanatory variables, others will be used as control variables. In the following sections we will elaborate on possible firm specific explanatory variables.

2. Market forces influencing CIR practices

In this section we will investigate the impact of market forces on CIR. Some companies will be more prone to these forces than others due to company-specific characteristics. These will be discussed in the following sections.

2.2. The international scope of the company

Since many companies – and the publicly quoted companies used in our sample in particular – work in a global economy, the impact of culture on CIR practices may be reduced by market forces. Zarzeski (1996) finds : *“When firms are more internationally dependent, their disclosure behaviour is different from their home culture. In other words, international firms from more secretive cultures borrow the global culture of their competitors, as evidenced by less secretive disclosure practices of international firms.”*

The international scope of a company is therefore likely to influence its CIR practices.

Hypothesis 3 : **The level of CIR is positively related to the international scope of the company.**

We use the number of listings on foreign exchanges and the relative importance of foreign sales to capture the international scope of a company. Empirical research has shown that firms operating in an international environment are more likely to list on foreign exchanges than domestic firms (Saudaragan and Biddle, 1995). This is mostly explained by financial, marketing, and political motivations (Saudaragan, 1988). Apart from the cultural borrowing effect for international companies identified by Zarzeski (1996), the act of listing on a foreign stock exchange itself may impact CIR practices.

Companies listed on a foreign exchange probably have a larger proportion of actual and potential foreign investors. Firms whose shares are listed internationally face additional capital market pressures for the disclosure of information, compared to companies whose shares are only listed domestically (Meek et al., 1995). Since the internet is a very cost effective medium to reach a geographically dispersed target group, this can be a stimulus for the company to develop high quality CIR practices. Analogous evidence on voluntary disclosure supports this hypothesis.

Cooke (1989a, 1991) finds that Swedish and Japanese companies that are listed on foreign stock exchanges exhibit higher disclosure than their national counterparts. Similar results were obtained in Malaysia (Hossain et al., 1994) and New Zealand (Hossain et al., 1995). The same results were found for U.S., U.K. and Continental European multinationals. They disclosed more information than domestically listed companies (Meek et al., 1995).

Listing on foreign stock exchanges, however, is not the only element of international scope that may induce better CIR practices. Since foreign operations are often financed with foreign external capital (Cooke, 1991), internationally diversified companies may be incited to improve CIR practices in order to provide their foreign investors with adequate information in a timely and cost effective way.

This leads us to formulating two sub-hypotheses related to the international scope of the company :

Hypothesis 3a : **The level of CIR is positively related to the number of listings on a foreign stock exchange.**

Hypothesis 3b : **The level of CIR is positively related to relative importance of foreign sales.**

2.2 Ownership structure

Separation of ownership and control generates agency costs resulting from conflicts of interest between managers and shareholders. Jensen and Meckling (1976) have shown that, to the extent that managers do not hold the entire capital of their firm, they are motivated to divert part of the firm's value into perquisites. Accounting contributes to limit these wealth transfers by making them more apparent. CIR enhances this monitoring role of accounting by improving the accessibility and analysability of accounting numbers for all interested parties.

Several empirical studies have shown that financial statements are the main source of information for small shareholders. Because of their small part in the firm's wealth, these investors cannot incur large expenditures in the search for additional information (Dumontier and Raffournier, 1998). Shareholders of corporations with diffuse ownership structures also often lack "... *the resources, incentives, or access to relevant information to monitor managers' actions*" (Warfield, 1995). A diffuse ownership structure thus results in greater information asymmetry between managers and owners. CIR can facilitate the information flow towards these small shareholders and can, as such, help to reduce agency costs.

When government, banks, or certain families have substantial equity holdings, the physical separation between owners and managers usually is rather limited. Under these conditions, capital owners often have access to internal information and do not have to rely on public disclosure to monitor their investments (Adhikari and Tondkar, 1992).

We hypothesize that companies whose shares are highly dispersed over many different owners are more inclined to use the internet for disseminating financial (and non-financial) information.

Previous empirical studies on disclosure do not provide unambiguous evidence for this hypothesis. Neither Raffournier (1995) nor Wallace and Naser (1995) found a significant relationship between ownership diffusion and the content of annual reports. Pirchegger and Wagenhofer (1999) also found conflicting evidence in their study on the costs and benefits of reporting financial information on the internet. For the Austrian sample the dispersion of ownership was a significant positive factor influencing internet reporting practices, whereas for the German sample this factor was less significant and the relation was negative. Whether this was due to the very limited number of independent variables in the model is unclear.

This leads us to formulating the following hypothesis :

Hypothesis 4 : **The level of CIR is positively related to dispersion of ownership of the companies shares.**

2.3. Financial Structure

Leverage or total debt divided by total assets, is both a local and international market force because debt structures vary within countries and across countries (Sekely and Collins, 1988) It is not possible to predict a clear relationship between leverage and CIR practices, unless one can differentiate between public and private debt.

Agency costs are higher for firms with proportionally more debt in their capital structures (Jensen and Meckling, 1976) since potential wealth transfers from debtholders to shareholders and managers increase with leverage.

Firms raising capital on public debt markets probably do not share private information with their creditors. Consequently, in order to raise capital in the cheapest way they will improve disclosures in order to reduce the information asymmetry (Healy and Palepu, 2001). They may also disclose information relating to debt covenants (Jaggi and Low, 2000). One could therefore reasonably expect a positive relation between the level of public debt and disclosures (including CIR).

Firms financing themselves with private debt however, are likely to use other mechanisms than disclosures to minimize agency costs (Meek et al., 1995). Companies with higher leverage are more likely to share private information with their creditors. Companies with less leverage have a higher percentage of stock ownership, which could encourage investor demand for information. (Zarzeki, 1996). Therefore one could expect there to be a negative relationship between private debt and disclosure (including CIR).

Because of the problems of gathering data on the type of debt, we follow Jaggi and Low (2000) in the assumption that firms from common law countries issue more public debt and companies from code law countries depend more upon private debt.

Hypothesis 5 : **The level of CIR is positively related to the amount of leverage in common law countries and is negatively related to the amount of leverage in code law countries**

3. Control variables

We choose to include the following control variables in the model : industry type, size and technological factors. They will be discussed in the following sections.

3.1. Industry Type

Companies may not disclose certain information by the concern that the disclosure may damage their competitive position in the product markets. Sometimes it is better for firms not to disclose information that reduces their competitive position, even though disclosure would allow them to raise additional equity at a lower cost (Healy and Palepu, 2001). Proprietary and political costs vary across industries (Verrechia, 2001) and the relevance of disclosure can also vary across industries. Therefore, industry membership may exert influence on voluntary disclosure (Meek et al., 1995) and was added as a control variable.

Some studies have found an association between industry and disclosure (Cooke, 1991; Meek et al., 1995). Other studies (e.g. Craven and Marston [1999]) found no significant relationship between the extent of internet financial disclosure and industry type.

Hypothesis 6 : **The level of CIR is related to industry type.**

3.2. Size

Generally, large firms disclose more information than small ones (Meek et al., 1995). Ball and Foster (1982) noted that firm size has been used to proxy for numerous poorly defined theoretical constructs. As a result, firm size may be interpreted in many different ways, allowing it to explain everything, and thus nothing at the same time (Bujaki and Richardson, 1997).

It is generally argued that disclosing detailed information is less costly for large firms because these are assumed to produce this information already for internal purposes (Singhvi and Desai, 1971). Many costs in establishing a monitoring and reporting mechanism are likely to be fixed. Therefore, once the system is deployed the cost per unit of size is decreasing (Xiao et al., 1996). Larger firms may have lower information production costs, or they may have lower costs of competitive disadvantage associated with disclosures.

They also tend to be more complex and have a wider ownership base than smaller firms (Meek et al., 1995). Agency theory suggests that large firms have higher agency costs (Jensen and Meckling, 1976). The amount of potential wealth transfers thus increases with firm size. The benefits of monitoring mechanisms therefore are positively related to firm size (Xiao et al., 1996)

Hypothesis 7 : **The level of CIR is positively related to size.**

3.3 Technology factors

The internet adoption rate in the companies target population may have an impact on CIR practices. The higher the internet adoption by the target population, the more cost-effective CIR is as an instrument for investor relationship management. Once information has been gathered, processed and published on the internet it becomes a public good. Therefore the larger the potential user base, the more cost-effective the internet becomes as a medium for financial reporting and investor relation management.

If broadband internet access is available to the target population we might also see improved CIR because of the increased multimedia possibilities. Investors with broadband access could watch the annual meeting, conference calls with analysts and press, etc. Broadband internet users are also likely to spend more time on the internet, and they can get information faster than internet users with limited bandwidth (i.e less than 64 or 128 kbit/s).

This leads us to formulating following hypotheses :

Hypothesis 8 : **The level of CIR is positively related to internet enabling technology factors.**

Hypothesis 8a : **The level of CIR is positively related to the number of internet users.**

Hypothesis 8b : **The level of CIR is positively related to the number of broadband internet accounts.**

RESEARCH DESIGN

The validity and explanatory power of our model is tested on a sample of firms, selected from three Western European stock exchanges. Multivariate analyses will be conducted with the Corporate Internet Reporting index as a dependent variable, cultural dimensions, legal system and organizational characteristics as independent variables, and others as control variables.

Model

$$\begin{aligned} \text{CIRIDX} = & \alpha + \beta_{1a} (\text{UA}) + \beta_{1b} (\text{IND}) + \beta_{1c} (\text{MAS}) + \beta_{1d} (\text{PD}) + \beta_2 (\text{LS}) + \\ & \beta_{3a} (\text{FSALE}) + \beta_{3b} (\text{XLIST}) + \beta_4 (\text{FRFL}) + \beta_5 (\text{LEVER}) + \\ & \beta_6 (\text{INDUSTRY}) + \beta_7 (\text{SIZE}) + \beta_8 (\text{NETUSE}) + \beta_9 (\text{BROAD}) + \varepsilon \end{aligned}$$

where : CIRIDX = Corporate Internet Reporting Index;
UA = Uncertainty avoidance; IND = Individualism ; MAS = Masculinity ; PD = Power Distance ;
LS = Legal system ;
FSALE = Relative importance of foreign sales to total sales ;
XLIST = Number of listings on a foreign exchange ;
FRFL = Percentage of Free Float of the shares ;
LEVER = Leverage or debt divided by total assets ;
INDUSTRY = Industry classifications – dummy variables ;
SIZE = Decimal log of total sales in M€ ;
NETUSE = the % of internet users in a country ;
BROAD = Relative share of broadband internet access to all internet access in a country.

Sample selection and financial data collection

Data was collected for the 20 largest (measured by market capitalisation) non-financial (i.e. no banks or insurance companies), domestic (i.e. no foreign MNCs, with foreign relative to the country of the exchange) companies from three stock exchanges : the London stock exchange, Euronext Brussels and the Frankfurt stock exchange⁸. Data was gathered by surfing to the companies' websites and scoring them, using a self-constructed CIR index. For more details on our scoring system we refer to the next section on variable measurement. Financial company data was gathered from the DATASTREAM database, from company annual reports and the respective stock exchanges. For the regression model one observation was dropped from the Belgian sample due to independent variable data unavailability. For industry analysis seven further observations will be discarded.

⁸ Detailed information about the sample can be found in appendix A, table A.2.

Measurement of variables

1. CIR Index – the dependent variable

In order to measure the level of Corporate Internet Reporting we have visited the company's website, and scored the website's content and features based on a catalogue of 76 criteria. These criteria are based on a literature review and can be divided into several groups : content (32 items), timeliness (6 items), technology (18 items) and user support (20 items). All seventy-six criteria can be coded "1" or "0". All items are equally weighted. Summing the total number of items awarded to firm j for category i across all categories $i=A,D$ produces an ordinal measure of corporate internet disclosure level for each firm. The scores of the CIR-index can range from 0 to 76.

The criteria used to compute the CIR index are listed in appendix A. The list is mainly based on the work of Pirchegger and Wagenhofer (1999), Zarzeski (1996) and the FASB (2000).

Cooke and Wallace (1989) recognise explicitly the inherent problem of measuring "disclosure". Disclosure is an abstract concept that can only be measured indirectly. With regard to the nature of our dependent variable that is to be measured, and our measuring instrument, the CIR index, two criteria need to be considered : reliability and validity (Marston and Shrives, 1991 ; Healy and Palepu, 2001).

In order to construct a reliable measure – i.e. the results can be replicated by another researcher – we decided to work with a simple binary coding of the items included in the index to reduce the amount of judgement by the researcher in the scoring process. If the item was available at the website it was scored "1", or "0" otherwise. Nevertheless, subjective judgement cannot be ruled out completely. We are also aware that we lose some information by using binary values since not disclosure on a specific item is equally informative.

By testing the internal consistency of the CIR index we can provide some insight into the reliability of the measure and its possible limitations (Botosan, 1997). The decision to use the internet as a reporting medium and investors relations instrument is part of a company's reporting strategy and it is therefore likely that the components (content, timeliness, technology and user support) of the disclosure index are positively correlated with one another. Each of these correlations are indeed positive and statistically significant at the 1% level or better⁹.

Cronbach's coefficient alpha (Cronbach, 1951), is a measure of internal consistency that uses repeated measurements (in this case the categories of the CIR index) to assess the degree to which correlation among the measurements is attenuated by random error. Computed for our CIR index over the four categories, Cronbach's coefficient alpha is 0,81. There is no standard test of significance for this statistic. As a general rule, an alpha of 0,8 indicates that the correlation is attenuated very little by random measurement error (Carmines and Zellner, 1979). Random measurement error is thus unlikely to reduce the power of the empirical tests that follow.

We use a self-constructed measure to increase the confidence that the measure truly captures what is intended : the amount of information about the company reported on the website that may be useful to the company's stakeholders and the efficiency with which this information is communicated to the website-user using commonly available internet technology.

To the extent that our CIR index truly captures this, we have a valid index.

The deliberate choice for a new index is due to our broader approach to CIR, analogous to Cooke (1989b) we use a wide-ranging approach to CIR not limiting our perspective to any specific user group (i.e. investors). This wide-ranging approach was also chosen since we follow Wallace (1988) in the opinion that consensus within user groups is not obvious and depends on perception stability, user group homogeneity and disclosure item homogeneity¹⁰. The fast evolution in internet technology also required us to add items to existing indexes.

⁹ For statistical results : see Appendix C, Table C.3

¹⁰ "Perception is stable if all users hold identical views on the level of importance regardless of their different needs for the item. A user group is homogeneous if there are not major differences within the group on the degree of importance of an item. An item is homogeneous if it means one thing to every member of a user group and a different thing to every member of a different user group." (Marston and Shives, 1991, p.202)

We are however aware that we – by doing so – lose the advantage of a direct comparison with previous research.

Because of our wide-ranging approach to CIR we have also opted not to use weights to calculate the index score. Different user groups probably attach different weights to different items¹¹. Previous research has also shown that results based on a weighted index often are similar to those based on a unweighted index. Companies that are better at disclosing ‘important items’ usually are also better at disclosing ‘less important items’. (Marston and Shrivess, 1991 ; Cooke, 1989b ; Zarzeski ,1996).

We have not corrected our index for potential items that are not applicable to certain companies. We implicitly assume that all items included in the index are applicable to all companies in our sample. We can fairly state that this is true for all items of the categories *timeliness*, *technology* and *user support* of our index. With regard to the category *content*, problems could arise with the items “segment reports” and “information on R&D”. Therefore, it should be noted that there is a potential downward bias in our measurement for companies with only one segment and/or companies not engaging in R&D. So with only two out of seventy-six items being problematic and considering the size of the companies in our sample, the overall error in our measurement due to inapplicable items is likely to be small or inexistent.

Another disadvantage of using disclosure indexes identified by Healy and Palepu (2001) – the fact that disclosures made through unofficial or non-public channels often are not incorporated in self-constructed disclosure measures – is no concern to our study, since our focus is only on what is reported on the company’s website.

¹¹ It could be argued that the different components of the CIR index should be weighted differently since they are of a dissimilar conceptual nature. Content and timeliness are related to the amount and relevance of information that is being communicated. Technology and user support relate to the way and the means by which the information is conveyed to the user. We consider both aspects of reporting equally important : e.g. “What is the use of a relevant piece of information offered on a corporate website that cannot be found by the average internet user within a reasonable time-frame due to a user-unfriendly navigation system ?”

2. Environmental socio-political variables

UA, PD, IND and MAS

Hofstede's (1980) four cultural dimensions are measured as continuous variables, ranging from 5 to 112 for the 50 countries in his study. These measures were developed by Hofstede (1980) in a multidimensional scaling of surveys from over 160.000 IBM employees across 64 countries. Cultural values have been obtained from Hofstede (1992). The scores for Belgium, Germany and the UK – the countries of interest to this study – on these dimensions are included in the appendix B. For these countries the scores range from 35 to 89.

A country's cultural values for dimensions of UA, IND, PD and MAS have been used as the firm's cultural values. This means that cultural values of all companies from a single country will be the same.

LS

The LS variable is a dummy variable coded as one for common law countries, i.e. the UK, and zero for code law countries, i.e. Belgium and Germany. For classification, we relied on the work of La Porta et al. (1998).

3. Organizational specific variables

FSALE

The relative importance of foreign sales is measured by dividing total foreign sales by total sales. The relative importance of foreign sales determines to what extent the company is prone to international market forces, which are assumed to influence reporting practices. Companies with a higher level of foreign sales are presumed to have more foreign operations, labor and capital (Zarzeski, 1996). Data was gathered from company annual reports or from the company's investor relations department.

XLIST

The number of cross listings or the number of listings on foreign stock exchanges is also a measure for the international scope of a company. Data was collected from the Reuters website (<http://www.reuters.com>).

FRFL

The percentage of free float of a company's shares is a measure for the dispersion of ownership. Shares with a higher percentage of free float are assumed to have a higher dispersion of ownership. Data was retrieved from the stock exchanges (Euronext Brussels and the Frankfurt stock exchange) and the DATASTREAM databank (for companies listed on the London Stock Exchange)

LEVER

The financial structure of the company is measured by the amount of leverage, i.e. total debt divided by total assets. Data was collected from the annual reports.

4. Control variables

INDUSTRY

The international standard industrial classification (ISIC, Rev. 3) of the United Nations statistics division will be used for industry classification (two digit codes).

SIZE

Firm size can be measured in a number of ways (for an overview we refer to Bujaki and Richardson, 1997). We chose to measure firm size by total sales, of which the logarithm will be used for the regression. We also use Market Capitalization as an alternative measure of firm size, of which also the logarithm will be used for the regression. Data was collected from the annual reports and the stock exchanges.

NETUSE and BROAD

For these figures we are dependent on less reliable sources. It was not possible to get data on internet usage and broadband connections from the associations of internet service providers (ISP's) for the three countries. Therefore we rely on the research done by the EU Directorate General for the "Information Society". The data is based on a telephone survey from November 2001. They interviewed 36.081 Europeans, at a rate of 2.000 per country (except in Germany where 4.000 interviews were carried out). (European Commission, 2001)

NETUSE is the percentage of people who declared to have access to the internet. BROAD is the percentage of those who have access to the internet through a broadband connection (i.e. ADSL or Cable Modems).

Table 1 summarizes the variables of the model, the measures used and the expected impact on CIR.

Table 1: Summary of independent and control variables

<i>Dependent variable</i>	<i>Measure</i>	<i>Notation</i>	<i>Expected Sign</i>
<i>Environmental socio-political variables</i>			
Culture	Hofstede's (1992) index-value for each of these cultural dimensions :		
	Uncertainty Avoidance	UA	-
	Power Distance	PD	-
	Individualism	IND	+
	Masculinity	MAS	+
Legal System	Dummy variable, coded "1" for common law and coded "0" for code law	LS	+
<i>Company-specific Variables</i>			
International scope of the company	Percentage of foreign sales to total sales	FSALES	+
	The number of listings on foreign stock exchanges	XLIST	+
Ownership structure	Percentage of free float of company shares	FRFL	+
Capital structure	Total debt / Total assets	LEVER	+ or -
<i>Control variables</i>			
Industry	ISIC Rev.3 Industry classification - Represented by dummy variables in the regression.	IND	NA
Company size	Total assets (log)	SIZE	+
	Percentage of internet users in a country	NETUSE	+
Internet availability	Percentage of broadband internet users relative to total internet users	BROAD	+

RESEARCH RESULTS

1. Descriptive Analysis

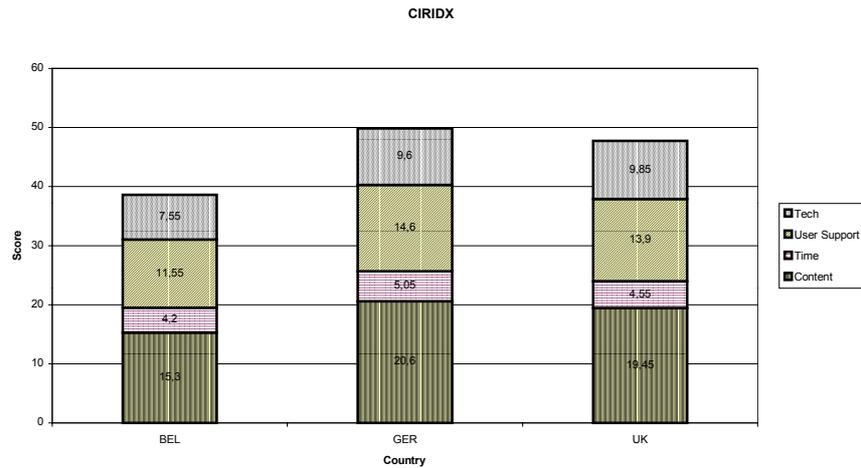
All companies included in the sample had a website and used it for corporate reporting purposes. Table 2 presents descriptive statistics for the total sample of companies and for the country sub-samples. First, we note the range of the CIRIDX to be rather small for the German and UK companies. Second, the size difference (whether measured by sales volume or market capitalisation) between the companies from the Belgian sub-sample and the German and UK sub-samples are remarkable. The UK companies have on average the highest market capitalization, whereas German companies have the highest sales volume. For the total sample, we note wide variations across the dependent and independent variables providing the possibility for statistical relationships.

Table 2 : Sample characteristics

Sample Descriptives								
Country		CIRIDX	Foreign Sales	Xlisting	Free Float	Leverage	Sales (M€)	Market Cap (M€)
BEL	Mean	39,21	,5819	1,84	,5416	,5172	6.321,58	3.013,65
	N	19	19	19	19	19	19	19
	Std. Deviation	7,70	,3293	1,30	,1811	,1808	15.324,17	4.015,24
	Minimum	25	,0000	0	,2123	,2710	99,00	164,08
	Maximum	54	,9600	5	1,0000	1,0030	68.537,00	13.409,39
UK	Mean	47,75	,5422	4,15	,9325	,5229	23.462,25	53.667,23
	N	20	20	20	20	20	20	20
	Std. Deviation	5,52	,3148	1,18	,1664	,1565	39.202,45	59.612,25
	Minimum	36	,0000	3	,4500	,1373	1.419,20	14.695,75
	Maximum	57	,9546	7	1,0000	,7364	134.982,60	214.593,22
GER	Mean	49,85	,6129	4,05	,7047	,5333	39.708,02	24.647,80
	N	20	20	20	20	20	20	20
	Std. Deviation	4,23	,2310	1,90	,2071	,1899	37.016,45	19.399,75
	Minimum	44	,1503	0	,3121	,1838	4.842,00	6.262,45
	Maximum	58	,8901	8	1,0000	,8989	152.873,00	68.927,09
Total	Mean	45,71	,5790	3,37	,7294	,5246	23.449,41	27.517,96
	N	59	59	59	59	59	59	59
	Std. Deviation	7,45	,2906	1,82	,2435	,1733	34.820,14	41.566,08
	Minimum	25	,0000	0	,2123	,1373	99,00	164,08
	Maximum	58	,9600	8	1,0000	1,0030	152.873,00	214.593,22

Table 3 summarizes the descriptive statistics of CIR practices in Belgium, the UK and Germany. On average, overall CIR is highest in Germany, closely followed by the UK. CIR practices in Belgium seem less developed. This is also illustrated in Figure 1.

Figure 1 : Average CIRIDX and its components



Examining the components of our CIR index, we see a similar situation for the content, the timeliness of the information and the amount of user support offered on the websites. The situation regarding website technology is slightly different : on this topic the UK precedes Germany with a very small lead, followed at some distance by Belgium.

Table 3 : Descriptive Statistics on the Corporate Internet Reporting Index (CIRIDX) and its components

		Descriptives							
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
					Lower Bound	Upper Bound			
content	BEL	20	15,30	3,21	,72	13,80	16,80	9	21
	UK	20	19,45	2,01	,45	18,51	20,39	16	24
	GER	20	20,60	1,70	,38	19,81	21,39	18	24
	Total	60	18,45	3,29	,42	17,60	19,30	9	24
timeliness	BEL	20	4,20	1,20	,27	3,64	4,76	2	6
	UK	20	4,55	,83	,18	4,16	4,94	3	6
	GER	20	5,05	,22	5,00E-02	4,95	5,15	5	6
	Total	60	4,60	,91	,12	4,37	4,83	2	6
technology	BEL	20	7,55	2,28	,51	6,48	8,62	3	12
	UK	20	9,85	1,95	,44	8,94	10,76	6	13
	GER	20	9,60	1,73	,39	8,79	10,41	8	13
	Total	60	9,00	2,22	,29	8,43	9,57	3	13
user support	BEL	20	11,55	2,98	,67	10,15	12,95	6	20
	UK	20	13,90	2,10	,47	12,92	14,88	11	18
	GER	20	14,60	1,85	,41	13,74	15,46	12	18
	Total	60	13,35	2,67	,34	12,66	14,04	6	20
CIRIDX	BEL	20	38,60	7,98	1,78	34,87	42,33	25	54
	UK	20	47,75	5,52	1,24	45,16	50,34	36	57
	GER	20	49,85	4,23	,95	47,87	51,83	44	58
	Total	60	45,40	7,77	1,00	43,39	47,41	25	58

In the next section we will investigate whether or not these differences are significant and if they can be explained/predicted by our hypotheses.

2. Statistical Analysis

2.1. Differences in CIR practices

Hypothesis 1 suggests that the level of CIR is different across companies in Belgium, Germany and the UK. The data supports this hypothesis : the means of the three sub-samples differ significantly. Evidence is provided in table 4 : Panel A reports the results of the Kruskal-Wallis test and Panel B reports the results of the median test ¹².

Corporate Internet Reporting (CIRIDX) differs significantly across the three European countries under study. From the analysis of the index's components we learn that these differences originate mainly in the content that is being reported, the extent to which technologic functionalities are used on the corporate website and marginally in the amount of user support being offered to the website users. Timeliness does not differ significantly across these three countries.

In order to know which countries differ from one another, Mann-Whitney U Tests for independent samples were carried out (Appendix C, table C.4.). These showed that differences in overall reporting (CIRIDX) were significant between Belgium and the UK and between Belgium and Germany. Differences between Germany and the UK turned out to be insignificant. The same results were found for the CIRIDX components CONTENT, TECHNOLOGY and USER SUPPORT.

In the next section we will investigate which factors determine CIR practices and cause these (significant) differences between CIR practices in Belgium, the UK and Germany.

¹² The CIRIDX variable follows a normal distribution but the homogeneity of variances assumption across groups is not satisfied, therefore non-parametric test were used. Using parametric tests, however, has no impact on the results. The parametric ANOVA can be found in appendix C, table C.3.

Table 4 : Non-parametric Tests between Countries

Panel A : Kruskal-Wallis Test

Ranks

	CountryID	N	Mean Rank
content	BEL	20	14,23
	UK	20	34,70
	GER	20	42,58
	Total	60	
timeliness	BEL	20	25,45
	UK	20	28,42
	GER	20	37,63
	Total	60	
technology	BEL	20	19,38
	UK	20	37,75
	GER	20	34,38
	Total	60	
user support	BEL	20	18,42
	UK	20	33,63
	GER	20	39,45
	Total	60	
CIRIDX	BEL	20	15,98
	UK	20	35,35
	GER	20	40,17
	Total	60	

Test Statistics^d

	content	timeliness	technology	user support	CIRIDX
N	60	60	60	60	60
Median	19,00	5,00	9,00	13,00	47,00
Chi-Square	15,204 ^a	,000 ^b	10,909 ^c	8,281 ^a	10,724 ^a
df	2	2	2	2	2
Asymp. Sig.	,000	1,000	,004	,016	,005

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 8,7.

b. 3 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 1,0.

c. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 7,3.

d. Grouping Variable: CountryID

Panel B : Median Test

Frequencies

		CountryID		
		BEL	UK	GER
content	> Median	2	10	14
	<= Median	18	10	6
timeliness	> Median	1	1	1
	<= Median	19	19	19
technology	> Median	2	12	8
	<= Median	18	8	12
user support	> Median	4	9	13
	<= Median	16	11	7
CIRIDX	> Median	3	10	13
	<= Median	17	10	7

Test Statistics^{a,b}

	content	timeliness	technology	user support	CIRIDX
Chi-Square	28,515	8,078	12,901	15,722	21,583
df	2	2	2	2	2
Asymp. Sig.	,000	,018	,002	,000	,000

a. Kruskal Wallis Test

b. Grouping Variable: CountryID

2.2 The Empirical Model

Due to the preliminary nature of this study we dispose only over a limited number of observations (N=52)¹³ from just three countries. These data limitations forced us to adapt the earlier developed theoretical model for empirical purposes. In the empirical tests we have used dummy variables for all country factors, which definitely reduces the inference that can be drawn from the results.

Consequently, a dummy variable replaces and incorporates all factors related to a single country : culture (individualism - uncertainty avoidance – masculinity - power distance), internet usage, broadband access, ... Therefore we will not be able to identify any of the specific differences between countries as a significant factor influencing corporate internet reporting. In this model we will need to be extremely careful with the variable “culture” as it might just end up to be a “*residue for everything that cannot be explained by other factors.*” (Gernon and Wallace, 1995). This leaves us with a very preliminary empirical model which results should be looked upon with caution.

The empirical model 1 thus becomes :

$$\text{CIRIDX} = \alpha + \beta_{1a} (\text{UK}) + \beta_{1b} (\text{GER}) + \beta_{3a} (\text{FSALE}) + \beta_{3b} (\text{XLIST}) + \beta_4 (\text{FRFL}) \\ + \beta_5 (\text{LEVER}) + \beta_6 (\text{INDUSTRY}) + \beta_7 (\text{SIZE}) + \varepsilon$$

where : CIRIDX = Corporate Internet Reporting Index;

UK = Dummy variable representing the difference between Belgium and the UK;

GER = Dummy variable representing the difference between Belgium and Germany;

FSALE = Relative importance of foreign sales to total sales ;

XLIST = Number of listings on a foreign exchange ;

FRFL = Percentage of Free Float of the shares ;

LEVER = Leverage or debt divided by total assets ;

INDUSTRY = Industry classifications – dummy variables ;

SIZE = Decimal Log of total sales in M€ ;

¹³ From the original sample of 60 companies, one Belgian company has been dropped due to the unavailability of the percentage of foreign sales. Seven further observations were discarded since they could not be classified in one of the eight industry categories (vide infra).

The companies in our sample belong to the following industries : Mining and quarrying, Manufacturing, Food and Beverages, Chemicals, Utilities, Retail, Telecom, Information Technology (IT). Table 5 presents an industry by country breakdown of the firms included in the sample. In the regression model, dummy variables will be included for the industries Mining, Manufacturing, Food & Beverages, Chemicals, Utilities, Telecom and IT. These dummy variables thus measure the CIR behaviour that can be attributed to the respective industries relative to the retail industry.

Table 5 : Industry by country breakdown

Count		Industry								Total
		Mining	Manufact	Food & Beverage	Chem	Utility	Retail	Telecom	IT	
Country	BEL		4	1	6	1	2	1	2	17
	UK	6	1	3	2	1	2	3		18
	GER		5		5	2	1	1	3	17
Total		6	10	4	13	4	5	5	5	52

Regression results for the *empirical model 1* are shown in table 6. The (adjusted) R² of the empirical model is (46,7 %) 61,4 % and the model is significant at the $\alpha=0,001$ level or better. All the coefficients have the predicted sign, except for Leverage where no a priori relationship for the whole sample was predicted. However, only one of the individual coefficients of the regression model appears to be significant : the percentage of foreign sales. This might be an indication for multicollinearity, which might be resolved by using a larger number of observations. In the absence of a larger sample, a different model will be estimated to minimize the impact of multicollinearity.

The correlation table C.1 and the collinearity diagnostics in table C.2 of appendix C are used to detect independent variables that cause multicollinearity. According to table C.2. the LN_SALES variable is the main contributor to multicollinearity¹⁴, and hence the regression is re-run (empirical model 2) without the size variable. This may induce a specification bias into our model. However, since LN_SALES was a control variable, the specification bias could be limited.

¹⁴ The condition index is 73,78. A condition index between 10 and 30 is associated with moderate to strong multicollinearity, if the condition index exceeds 30 there is severe multicollinearity (Gujarati, 1995).

Table 6 : Regression results for empirical model 1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,783 ^a	,614	,467	5,33

a. Predictors: (Constant), Mining, Foreign_sales, IT, foodbev, LN_SALES, mfac, Leverage, utility, Free Float, telecom, GER, Xlisting(diffcountry), UK, chem

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1666,406	14	119,029	4,196	,000 ^a
	Residual	1049,671	37	28,369		
	Total	2716,077	51			

a. Predictors: (Constant), Mining, Foreign_sales, IT, foodbev, LN_SALES, mfac, Leverage, utility, Free Float, telecom, GER, Xlisting(diffcountry), UK, chem
b. Dependent Variable: CIRIDX

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	10,712	14,240		,752	,457
	UK	1,362	3,087	,090	,441	,662
	GER	3,803	2,851	,247	1,334	,190
	Free Float	8,249	5,152	,275	1,601	,118
	Leverage	,607	5,219	,014	,116	,908
	Xlisting	1,013	,678	,246	1,495	,143
	Foreign_sales	8,668	4,179	,343	2,074	,045
	LN_SALES	,724	,652	,178	1,110	,274
	IT	3,059	3,830	,125	,799	,430
	telecom	4,925	3,582	,201	1,375	,177
	utility	3,883	3,757	,143	1,034	,308
	chem	-1,266	3,437	-,076	-,368	,715
	foodbev	2,891	4,128	,107	,700	,488
	mfac	2,963	3,517	,162	,842	,405
	Mining	1,202	3,812	,053	,315	,754

a. Dependent Variable: CIRIDX

Table 7 : Regression results for empirical model 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,775 ^a	,601	,464	5,34

a. Predictors: (Constant), Mining, Foreign_sales, IT, foodbev, Xlisting(diffcountry), Leverage, utility, mfac, telecom, GER, Free Float, UK, chem

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1631,454	13	125,496	4,397	,000 ^a
	Residual	1084,623	38	28,543		
	Total	2716,077	51			

a. Predictors: (Constant), Mining, Foreign_sales, IT, foodbev, Xlisting(diffcountry), Leverage, utility, mfac, telecom, GER, Free Float, UK, chem
b. Dependent Variable: CIRIDX

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	25,336	5,421		4,674	,000
	UK	2,481	2,927	,163	,848	,402
	GER	5,527	2,398	,359	2,304	,027
	Free Float	7,486	5,122	,249	1,462	,152
	Leverage	1,686	5,144	,039	,328	,745
	Xlisting	1,208	,657	,294	1,839	,074
	Foreign_sales	8,571	4,190	,339	2,045	,048
	IT	2,697	3,827	,110	,705	,485
	telecom	4,623	3,583	,189	1,290	,205
	utility	4,630	3,707	,171	1,249	,219
	chem	-,937	3,434	-,056	-,273	,786
	foodbev	3,427	4,112	,126	,833	,410
	mfac	3,470	3,498	,189	,992	,327
	Mining	1,948	3,764	,086	,517	,608

a. Dependent Variable: CIRIDX

Empirical Model 2 – Results

Dropping the LN_SALES variable causes only a minor decrease in explanatory power.

The coefficients for the constant (representing all country-related factors of Belgium and industry related factors of the retail industry), the number of cross-listings, the percentage of foreign sales and the dummy variable GER now are significant.

The latter is an indication that country-related factors, whether cultural or other, significantly influence corporate internet reporting. The data at hand therefore does not refute hypothesis 1 (which confirms our findings from section 2.1), but does challenge the sub-hypotheses 1a, 1b, 1c and 1d.

The fact that the coefficient on the dummy UK is not significant, might be due to multicollinearity since the highest condition index for this regression is still 21,8. It can also be the merit of the explanatory and control variables included in the multivariate analysis. Re-running the regression without controlling for industry and hence using a sample of N=59 observations¹⁵ results in a significant coefficient on the UK dummy. It remains impossible to tell whether this is due to the larger set of observations or the effect of controlling for industry type. A larger sample seems indispensable to draw stronger inferences.

According to Gray's (1988) fourth hypothesis¹⁶ and Hofstede's (1992) cultural values (data in appendix B), one would expect the UK to have the highest score on the Corporate Internet Reporting Index, followed by Belgium and Germany. From the analysis in section 2.1 we know that German companies on average score higher than UK companies, but that the difference is not significant. Both UK and German companies – on average - score significantly higher than Belgian companies. This is also supported by the (significant and) positive coefficients of the country variables in the second empirical model.

These results might be due to the fact that the Hofstede's (1992) cultural values from a study of the world wide employees of IBM are not appropriate to predict CIR. Gernon and Wallace

¹⁵ The results can be found in appendix C, table C.6.

¹⁶ "The higher a country ranks in terms of uncertainty avoidance and power distance and the lower it ranks in terms of individualism and masculinity then the more likely it is to rank highly in terms of secrecy."

(1995, p.90) note that this might be the case since “ ... *IBM employees self-selected themselves to work for IBM and may not typify the rest of the people in their countries of birth and/or domicile ... Hofstede’s sample is limited to particular locations and organizations and his findings may not be generalizable to other populations (individuals, organizations and countries).*” Moreover, Hofstede’s values date from a study carried out in the 1980’s. Societies evolve over time, which makes that there may have been shifts in values. These need not have happened in the same direction and with the same magnitude in all countries.

The “unexpected” high score from the German companies could also be due to our sample selection : all German companies included in our sample are very large¹⁷, international companies competing for resources on an international level. Some of them have even merged with U.S. multinationals or have acquired U.S. or U.K companies. Here, Zarzeski’s (1996) theory of “cultural borrowing” might offer an explanation. Adhicari and Tondkar (1992) also state that the disclosure practices of large companies may not be the best proxy for the general disclosure level in their country of domicile. Again, a larger sample would be useful to assess hypotheses 1a, 1b, 1c and 1d. The differences between the countries could also be attributed to possible size differences. Size is known to be positively related to disclosure, and this may as well apply to CIR practices.

Hypothesis 2, which predicted overall CIR to be higher in common law countries, is neither confirmed nor refuted by the data at hand. Comparing Belgium and the UK, the hypothesis is confirmed. However, comparing the UK to Germany challenges the hypothesis. On average CIR is higher in Germany than in the UK, but the difference is not significant.

The data supports the third hypothesis that states that the international scope of a company is positively related to the level of CIR. The percentage of foreign sales of a company is significantly positively related to CIR practices. The number of listings on a foreign stock exchange is also positively related to the level of CIR, however this coefficient is only significant at the $\alpha=10\%$ level.

The level of free float is also positively related to CIR practices, the coefficient however is not significant. Therefore we conclude that hypothesis 4 is neither confirmed nor refuted. This

¹⁷ On average, the German companies have the highest level of Sales.

may also be due to the percentage of free float being only a noisy proxy for the agency costs related to the separation of management and control.

The three-way ownership classification of McEachern (1975) might be a better measure. He distinguishes three different ownership structures : (1) firms with a dominant stockholder acting also as manager (i.e. owner-managed – OM), (2) firms with a dominant outside stockholder (externally-controlled – EC) and (3) firms with no dominant stockholder (manager-controlled – MC) (Dempsey et al., 1993).

Leverage shows also a slightly positive relation to CIR practices but the coefficient is also insignificant. This can be explained from our inability to differentiate between public and private debt, and hence to formulate an a priori expectation about the sign of this coefficient.

In order to test hypothesis 5, we split the sample in code and common law countries and compute the correlation between CIRIDX and LEVERAGE. The implicit assumption here is that common law countries issue more public debt than code law countries (Jaggi and Low, 2000). The results can be found in table 8. The correlation for the common law sample is 0,042 ($p < 0,860$). The correlation coefficient is positive – which is the expected sign - but not significant. The correlation for the code law sample is $-0,11$ ($p < 0,499$). The correlation coefficient is negative – which also is the expected sign – but not significant. We find only mild support for hypothesis 5. A larger sample set might allow us to draw stronger inferences.

Table 8 : Pearson correlations (code and common law countries)

		CIRIDX	Leverage
CIRIDX	Pearson Correlation	1,000	,042
	Sig. (2-tailed)	,	,860
	N	20	20
Leverage	Pearson Correlation	,042	1,000
	Sig. (2-tailed)	,860	,
	N	20	20

		CIRIDX	Leverage
CIRIDX	Pearson Correlation	1,000	-,110
	Sig. (2-tailed)	,	,499
	N	40	40
Leverage	Pearson Correlation	-,110	1,000
	Sig. (2-tailed)	,499	,
	N	40	40

The data does not seem to support any association between industry and CIR practices (H6). Coefficients differ across industries, but none of them is significant. This, however, could be due to multicollinearity. Therefore we also univariately tested for differences in CIR practices between industries. The results are shown in table 9 and indicate no differences between industries.

Table 9 : Differences in CIR practices across industries

Descriptives

CIRIDX

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Mining	6	49,67	6,74	2,75	42,59	56,74	41	57
Manufact	10	46,90	5,15	1,63	43,21	50,59	38	56
Food & Beverages	4	48,50	1,29	,65	46,45	50,55	47	50
Chem	13	44,31	9,55	2,65	38,54	50,08	26	58
Utility	4	46,50	4,51	2,25	39,32	53,68	41	52
Retail	5	40,80	9,28	4,15	29,27	52,33	25	47
Telecom	5	44,60	6,69	2,99	36,29	52,91	36	52
IT	5	46,40	8,20	3,67	36,21	56,59	33	55
Total	52	45,81	7,30	1,01	43,78	47,84	25	58

ANOVA

CIRIDX

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	295,874	7	42,268	,768	,617
Within Groups	2420,203	44	55,005		
Total	2716,077	51			

The first empirical model suggested only mild support for hypothesis 7 which states that size is positively related to CIR practices. The coefficient on the size variable – the decimal log of Sales – is positive but not significant. The latter is likely due to multicollinearity.

Control hypothesis eight (technology factors) could not be tested due to data limitations (too little countries under study).

Because of the limited number of observations and the related multicollinearity issues, all of the above-mentioned empirical results should be looked upon with caution. Moreover, it is not hypothetical that other factors – not included in the empirical model – influence the estimated relations of the model, leading us to find spurious evidence or refutation.

The extent to which the firm is dependent on implicit claims¹⁸ with certain stakeholder groups may be one of those “other factors”. Even though stakeholders use several sources of information to assess a firm’s reputation for fulfilling their implicit claims, accounting numbers and reporting strategies are likely to be influential factors in this assessment procedure (Bowen et al., 1995).

Companies selling unique and durable products may have – ceteris paribus – more to gain from creating a healthy financial image – to which CIR can contribute significantly – than companies selling consumables. Table 5 – industry by country breakdown of our sample – shows that German companies are less well represented in the food & beverage and the retail industry. This may offer an alternative explanation for the better CIR practices in Germany. Analogous factors affecting the importance of implicit claims for other stakeholder groups can also be identified (Bowen et al., 1995 ; Cornell and Shapiro, 1987 ; Maksimovic and Titman, 1991 ; Dwyer et al, 1987).

Also the impact of governance structures on CIR practices may be evaluated. Peasnell et al. (2001) found that the monitoring role of outside directors is more pronounced in cases where an audit committee exists. In these cases the board of directors may then also be more inclined to demonstrate their monitoring performance towards the shareholders by engaging in CIR. The governance structure is also likely to show some interaction with the ownership structure.

On the other hand, managers managing or manipulating earnings – which is often associated with poor governance mechanisms (Beasley, 1996 ; Dechow et al, 1996) – may also use CIR to disseminate these financial statements to a large public. This may especially be the case if the motive for earnings management/manipulation is an equity offering, a merger for shares, or the maximization of the executive’s bonus (if it is related to stock market performance). (Shivakumar, 2000 ; Erickson and Wang, 1999 ; Healy, 1985)

Further research on these topics is definitely needed.

¹⁸ Many features of relational contracts are left implicit to accommodate change. Typical relational contracts include ongoing implicit claims between a firm and its management, employees, stockholders, and long- and short-term creditors (Bowen et al., 1995)

CONCLUSIONS

This preliminary study shows that Corporate Internet Reporting practices vary across the three European countries in our sample. However, CIR practices – as shown from our sample – are not in line with the predictions from the cultural-accounting theory of Gray (1988) and Hofstede (1980). With regard to our sample, Zarzeski's (1996) theory of “cultural borrowing” might offer an explanation. Results are promising but drawing conclusions from this research about the factors causing these differences would be injudicious. A larger sample is needed and the effect of other explanatory factors (implicit claims, governance structures) ought to be researched.

We can infer though that CIR practices are positively related to the international scope of the company. Both the percentage of foreign sales and the number of cross-listings are significant explanatory factors for CIR practices.

We intend to do further research on the topic, sensibly extending the sample, refining the measurements of our constructs and considering the other explanatory factors will hopefully allow us to draw stronger inferences on what drives CIR practices.

APPENDIX A

Table A.1 – Composition of the CIR-index

A Content

A1 *Components of financial information*

- Complete balance sheet available ?
- Complete profit and loss account available ?
- Cash flow statement available ?
- Notes to the accounts available ?
- Chairman's message to shareholders available ?
- Management discussion and analysis available ?
- Audit opinion available ?
- Segment reports available ?
- Major factors to influence next year available ?
- Profit forecast available ?
- Cash projections available ?
- Foreign GAAP (IAS, US GAAP) ?

A2 *Components of investor information*

- Management presentations (video and / or slides) available ?
- Investor relations calendar of events available ?
- Video feed of annual meeting of shareholders ?

A3 *Components of general information*

- Information on research and development available ?
- Information on Industry trends / position available ?
- Information on Management available ?
- Employee information available ?
- Information on company objectives available ?
- Information on customers available ?

A4 *Interim statement*

- Is the latest interim statement available ?
- Are all interim statements of the current year available ?

A5 *Ad hoc information*

- Are all pieces of ad hoc information available ?
- Are additional press releases available ?

A6 *Are charts on stock prices available ?*

A7 *Past information*

- Are annual financial statements of previous years available ?
- Are financial ratios for a three-year period or longer available ?

A8 *Languages*

- Is the website available in English ?
- Are there additional languages ?

A9 *Contact information*

- Company addresses available ?
- E-mail addresses available ?

B Timeliness

B1 *Timely information*

Has the website been updated recently ?

B2 *Can current information be distinguished from older info ?*

Is the date of the last update available ?

Are there any hints for finding current information directly ?

B3 *Quotations*

Are daily quotations available ?

Are daily quotations updated every day ?

B4 *Are there broken hyperlinks ?*

C Technology

C1 *Refreshment time*

Is the homepage on the screen completed within 10 sec. ?

Are the pages containing financial information completed within 10 sec. ?

C2 *Are there tickers ?*

C3 *Are there moving pictures or scripts (Java, ActiveX) ?*

C4 *Are there hyperlinked texts ?*

C5 *Are there direct e-mail contacts available ?*

C6 *Is navigation in text only mode possible without restrictions ?*

C7 *Are there any technical hints for the user available (browser, ...) ?*

C8 *Is interactive specification of requested information available ?*

C9 *Is there a search engine available ?*

C10 *Are external links to related contents available*

C11 *Mailing list*

Does a mailing list exist ?

Is it possible to order specific information ?

C12 *Is encryption of messages possible ?*

C13 *Can the balance sheet and the profit and loss account be printed without problems ?*

C14 *Is there use of flash ?*

C15 *Can data be downloaded in multiple formats (HTML, PDF, XLS, ...) ?*

C16 *Use of webcast, streaming video ?*

D User Support

D1 *Has the homepage an intuitive address ?*

D2 *Availability on search engines*

Google

Yahoo

MSN search

D3 *Appropriate presentation (resolution 1024x768, 800x600, 640x480)*

Does the size of the website and screen match ?

Are frames used ?

Are texts readable ?

Are graphics comprehended easily ?

D4 *Is the website well structured ?*

D5 *Is there information concerning technical devices (formats, size of downloads) ?*

- D6 *Browsing aids*
 Is a pull-down menu available ?
 Is a structure of contents / site map available ?
 Techniques to let users know they are inside the annual report ?
- D7 *Data analysis*
 Is it possible to download financial information ?
 Are downloaded files compressed ?
- D8 Less than one click to get to financial information ?
- D9 Less than three clicks to get to net profit ?
- D10 Less than three clicks to get to cash flow ?
- D11 Less than one click to get to daily quotations ?
- D12 Less than two clicks to get to press releases ?

Table A.2 – Companies included in the sample

Name	CIRIDX	Country	Website
Interbrew	48	Belgium	www.interbrew.com
Electrabel	41	Belgium	www.electrabel.com
Glaverbel	44	Belgium	www.glaverbel.com
Mobistar	40	Belgium	www.mobistar.be
CMB	27	Belgium	www.holding.cmb.be
UCB	34	Belgium	www.ucb.be
Solvay	54	Belgium	www.solvay.com
Delhaize	47	Belgium	www.delhaizegroup.com
Agfa Gevaert	40	Belgium	www.agfa.com
Colruyt	25	Belgium	www.colruyt.be
Omega Pharma	33	Belgium	www.omega-pharma.be
GIB	37	Belgium	www.gib.be
Umicore	36	Belgium	www.umicore.com
D'leteren	32	Belgium	www.dieteren.be
Bekaert	44	Belgium	www.bekaert.com
Tessenderlo	26	Belgium	www.tessenderlo.com
Barco (new)	38	Belgium	www.barco.com
IBA	45	Belgium	www.iba-worldwide.com
Telindus Group	33	Belgium	www.telindus.com
Ubizen	48	Belgium	www.ubizen.com

British Petroleum	57	United Kingdom	http://www.bpamoco.com/
Glaxosmithkline	47	United Kingdom	www.gsk.com
Vodafone Group	50	United Kingdom	www.vodafone.com/investor/
Cadbury Schweppes	47	United Kingdom	www.cadburyschweppes.com
BHP Billiton	48	United Kingdom	http://www.bhpbilliton.com/
Centrica	47	United Kingdom	http://www.centrica.co.uk
BG Group	41	United Kingdom	http://www.bg-group.com/
BAE Systems	47	United Kingdom	http://www.baesystems.com/
Marks & Spencer	47	United Kingdom	www.marksandspencer.com
Compass Group	41	United Kingdom	http://www.compass-group.com/
British Sky Broadcasting	36	United Kingdom	www.sky.com
british american tobacco	55	United Kingdom	www.bat.com
Rio Tinto	56	United Kingdom	www.riotinto.com
Tesco	40	United Kingdom	http://www.tesco.com/corporateinf
	49	United Kingdom	www.unilever.com
Anglo American	43	United Kingdom	www.angloamerican.co.uk
BT Group	52	United Kingdom	www.groupBT.com
Diageo	50	United Kingdom	www.diageo.com
Shell Transport and Trading	53	United Kingdom	www.shell.com
Astrazeneca	49	United Kingdom	www.astrazeneca.com

Bayer	58	Germany	www.bayer.de
Deutsche Telekom	45	Germany	www.telekom.de
Siemens AG	50	Germany	www.siemens.com
Daimlerchrysler	54	Germany	www.daimlerchrysler.com
SAP	46	Germany	www.sap.com
E.ON AG	52	Germany	www.eon.com
BMW	46	Germany	www.bmw.com
BASF	52	Germany	www.basf.com
Volkswagen	49	Germany	www.volkswagen.de
RWE	46	Germany	www.rwe.com
Infineon	55	Germany	www.infineon.com
schering	49	Germany	www.schering.de
Metro	45	Germany	www.metro.de
Henkel	48	Germany	www.henkel.com
Deutsche Post	50	Germany	www.deutschepost.de
Thyssenkrupp	56	Germany	www.thyssenkrupp.de
Degussa	50	Germany	www.degussa.de
Lufthansa	56	Germany	www.lufthansa.com
Linde	46	Germany	www.linde.de
Preussag / TUI	44	Germany	www.preussag.de

APPENDIX B

Hofstede's (1992) indexes and rankings of cultural dimensions in the U.K., Belgium and Germany. (p. 26, 53, 84, 113)

	Power distance		Uncertainty avoidance		Masculinity		Individualism	
	Score	Ranking	Score	Ranking	Score	Ranking	Score	Ranking
U.K.	35	42-44	35	47-48	66	9-10	89	3
Belgium	65	20	94	5-6	54	22	75	8
Germany	35	42-44	65	29	66	9-10	67	15

APPENDIX C : Statistics

Table C.1 : Pearson Correlation Matrix

Correlations

		CIRIDX	Free Float	Leverage	Xlisting	FSale	LN_SALES	LN_MKTCAP	IT	telecom	retail	utility	chem	foodbev	mfac	Mining	BEL	UK	GER
CIRIDX	Pearson Correlation	1,000	.458**	-.035	.626**	.251	.538**	.965**	.027	-.065	-.226	.028	-.120	.108	.074	.193	-.583*	.193	.387*
	Sig. (2-tailed)		.001		.000	.073	.000	.000	.851	.701	.107	.846	.397	.448	.603	.171	.000	.171	.005
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Free Float	Pearson Correlation	.458**	1,000	-.199	.577**	.026	.254	.563**	-.097	-.127	.037	.051	.019	.115	-.301*	.378**	-.547**	.602**	-.064
	Sig. (2-tailed)	.001		.158	.000	.854	.069	.000	.495	.371	.793	.718	.891	.417	.030	.006	.000	.000	.653
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Leverage	Pearson Correlation	-.035	-.199	1,000	.000	-.232	-.193	.063	-.259	.221	.125	-.043	-.157	-.168	.069	-.056	-.025	-.002	.027
	Sig. (2-tailed)	.805	.158		.998	.097	.171	.656	.064	.115	.379	.761	.265	.232	.627	.692	.859	.988	.847
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Xlisting(diffcountry)	Pearson Correlation	.626**	.577**	.000	1,000	.072	.549**	.731**	-.033	.004	-.070	.028	-.038	-.013	-.188	.361**	-.625**	.290*	.331*
	Sig. (2-tailed)	.000	.000	.998		.811	.000	.000	.817	.976	.622	.841	.790	.929	.182	.009	.000	.037	.017
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Foreign_sales	Pearson Correlation	.251	.026	-.232	.072	1,000	.003	-.030	.027	-.439**	-.308*	.149	.408**	.149	.228	.017	.109	-.176	.069
	Sig. (2-tailed)	.073	.854	.097	.611		.983	.833	.851	.001	.026	.007	.003	.293	.104	.905	.443	.213	.625
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
LN_SALES	Pearson Correlation	.538**	.254	.193	.549**	.003	1,000	.706**	-.179	-.076	-.116	.145	-.083	.029	.085	.206	-.637**	.143	.492**
	Sig. (2-tailed)	.000	.069	.171	.000	.983		.000	.203	.590	.412	.305	.558	.840	.548	.143	.000	.313	.000
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
LN_MKTCAP	Pearson Correlation	.665**	.563**	.063	.731**	-.030	.706**	1,000	-.158	.156	-.045	.109	-.088	-.127	-.244	.266	-.807**	.521**	.278*
	Sig. (2-tailed)	.000	.000	.656	.000	.833	.000		.263	.270	.753	.442	.537	.371	.082	.057	.000	.000	.046
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
IT	Pearson Correlation	.027	-.097	-.259	-.033	.027	-.179	-.158	1,000	-.106	-.106	-.094	-.188	-.094	-.159	-.118	.051	-.237	.190
	Sig. (2-tailed)	.851	.495	.064	.817	.851	.203	.263		.453	.453	.507	.181	.507	.280	.406	.721	.090	.178
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
telecom	Pearson Correlation	-.065	-.127	.221	.004	-.439**	-.076	.156	-.106	1,000	-.106	-.094	-.188	-.094	-.159	-.118	-.088	.174	-.088
	Sig. (2-tailed)	.701	.371	.115	.976	.001	.590	.270	.453		.453	.507	.181	.507	.280	.406	.534	.217	.534
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
retail	Pearson Correlation	-.226	.037	.125	-.070	-.308*	-.116	-.045	-.106	-.106	1,000	-.084	-.188	-.094	-.159	-.118	.051	.037	-.088
	Sig. (2-tailed)	.107	.793	.379	.622	.026	.412	.753	.453	.453		.507	.181	.507	.280	.406	.721	.795	.534
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
utility	Pearson Correlation	.028	.051	-.043	.028	-.372**	.145	.109	-.094	-.094	-.094	1,000	-.167	-.083	-.141	-.104	-.047	-.058	.107
	Sig. (2-tailed)	.846	.718	.761	.841	.007	.305	.442	.507	.507	.507		.238	.557	.319	.462	.739	.681	.452
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
chem	Pearson Correlation	-.120	.019	-.157	-.038	.408**	-.083	-.088	-.188	-.188	-.188	-.167	1,000	-.167	-.282*	-.209	.166	-.233	.071
	Sig. (2-tailed)	.397	.891	.285	.790	.003	.558	.537	.181	.181	.181	.238	.043	.138	.240	.096	.617	.617	
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
foodbev	Pearson Correlation	.108	.115	.168	-.013	.149	.029	.127	-.094	-.094	-.094	-.083	-.167	1,000	-.141	-.104	-.047	.245	-.201
	Sig. (2-tailed)	.448	.417	.232	.929	.293	.840	.371	.507	.507	.507	.557	.238		.319	.462	.739	.080	.153
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
mfac	Pearson Correlation	.074	-.301*	.069	-.188	.228	.085	-.244	-.159	-.159	-.159	-.141	-.282*	-.141	1,000	-.176	.076	-.252	.180
	Sig. (2-tailed)	.603	.030	.627	.162	.104	.548	.082	.260	.260	.260	.319	.043	.319		.171	.592	.071	.202
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Mining	Pearson Correlation	.193	.378**	-.056	.361**	.017	.206	.266	-.118	-.118	-.118	-.104	-.209	-.104	-.176	1,000	-.252	.486**	-.252
	Sig. (2-tailed)	.171	.006	.692	.009	.905	.143	.057	.406	.406	.406	.462	.138	.462	.211		.072	.000	.072
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
BEL	Pearson Correlation	-.583**	-.547**	-.025	-.625**	-.109	-.637**	-.807**	.051	-.088	.051	-.047	.166	-.047	.076	-.252	1,000	-.507**	-.486**
	Sig. (2-tailed)	.000	.000	.859	.000	.443	.000	.000	.721	.534	.721	.739	.240	.739	.592	.072		.000	.000
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
UK	Pearson Correlation	.193	.602**	-.002	.290*	-.176	.143	.521**	-.237	-.174	.037	-.058	-.233	.245	-.252	.496**	-.507**	1,000	-.507**
	Sig. (2-tailed)	.171	.000	.988	.037	.213	.313	.000	.090	.217	.795	.681	.096	.080	.071	.000	.000		.000
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
GER	Pearson Correlation	.387**	-.064	.027	.331**	.069	.492**	.278*	.190	-.088	-.088	.107	.071	-.201	.180	-.252	.486**	-.507**	1,000
	Sig. (2-tailed)	.005	.853	.847	.017	.625	.000	.046	.178	.534	.534	.452	.617	.153	.202	.072	.000	.000	
	N	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).

Table C.2 : Collinearity diagnostics for the empirical model 1

Collinearity Diagnostics^a

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions																
				(Constant)	UK	GER	Free Float	Leverage	Xlisting(diffcountry)	Foreign_sales	LN_SALES	IT	telecom	utility	chem	foodbev	mfac	Mining		
1	1	7,205	1,000	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
	2	1,646	2,092	.00	.03	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.01	.04
	3	1,096	2,564	.00	.00	.00	.00	.00	.00	.00	.00	.00	.11	.16	.03	.03	.00	.00	.00	.00
	4	1,033	2,641	.00	.00	.00	.00	.00	.00	.00	.00	.05	.09	.02	.00	.06	.03	.07	.07	.07
	5	1,004	2,679	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.07	.05	.03	.08	.04	.04	.04
	6	1,001	2,683	.00	.00	.00	.00	.00	.00	.00	.00	.00	.12	.11	.03	.12	.01	.00	.00	.00
	7	1,000	2,684	.00	.00	.00	.00	.00	.00	.00	.00	.21	.02	.05	.00	.05	.03	.01	.01	.01
	8	.454	3,982	.00	.01	.23	.00	.00	.01	.00	.00	.07	.00	.04	.01	.06	.03	.06	.06	.06
	9	.241	5,469	.00	.30	.06	.01	.03	.01	.01	.00	.00	.06	.03	.00	.05	.00	.25	.25	.25
	10	.123	7,643	.00	.00	.00	.00	.26	.00	.13	.00	.03	.35	.19	.03	.08	.07	.07	.07	.07
	11	8,348E-02	9,291	.00	.23	.29	.01	.00	.46	.01	.00	.09	.03	.06	.17	.07	.06	.19	.19	.19
	12	4,763E-02	12,299	.00	.00	.08	.03	.01	.30	.44	.00	.38	.04	.09	.64	.32	.57	.16	.16	.16

Table C.3.

Correlations

		content	timeliness	technology	user support
content	Pearson Correlation	1,000	,477**	,713**	,648**
	Sig. (2-tailed)	,	,000	,000	,000
	N	60	60	60	60
timeliness	Pearson Correlation	,477**	1,000	,362**	,501**
	Sig. (2-tailed)	,000	,	,005	,000
	N	60	60	60	60
technology	Pearson Correlation	,713**	,362**	1,000	,683**
	Sig. (2-tailed)	,000	,005	,	,000
	N	60	60	60	60
user support	Pearson Correlation	,648**	,501**	,683**	1,000
	Sig. (2-tailed)	,000	,000	,000	,
	N	60	60	60	60

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

Correlations

			content	timeliness	technology	user support
Spearman's rho	content	Correlation Coefficient	1,000	,365**	,645**	,665**
		Sig. (2-tailed)	,	,004	,000	,000
		N	60	60	60	60
	timeliness	Correlation Coefficient	,365**	1,000	,265*	,430**
		Sig. (2-tailed)	,004	,	,041	,001
		N	60	60	60	60
	technology	Correlation Coefficient	,645**	,265*	1,000	,680**
		Sig. (2-tailed)	,000	,041	,	,000
		N	60	60	60	60
	user support	Correlation Coefficient	,665**	,430**	,680**	1,000
		Sig. (2-tailed)	,000	,001	,000	,
		N	60	60	60	60

** . Correlation is significant at the .01 level (2-tailed).

* . Correlation is significant at the .05 level (2-tailed).

Table C.4.

Belgium - UK

Ranks

	CountryID	N	Mean Rank	Sum of Ranks
content	BEL	20	13,05	261,00
	UK	20	27,95	559,00
	Total	40		
timeliness	BEL	20	19,25	385,00
	UK	20	21,75	435,00
	Total	40		
technology	BEL	20	14,60	292,00
	UK	20	26,40	528,00
	Total	40		
user support	BEL	20	15,15	303,00
	UK	20	25,85	517,00
	Total	40		
CIRIDX	BEL	20	13,95	279,00
	UK	20	27,05	541,00
	Total	40		

Test Statistics^b

	content	timeliness	technology	user support	CIRIDX
Mann-Whitney U	51,000	175,000	82,000	93,000	69,000
Wilcoxon W	261,000	385,000	292,000	303,000	279,000
Z	-4,060	-,756	-3,231	-2,917	-3,552
Asymp. Sig. (2-tailed)	,000	,450	,001	,004	,000
Exact Sig. [2*(1-tailed Sig.)]	,000 ^a	,512 ^a	,001 ^a	,003 ^a	,000 ^a

a. Not corrected for ties.

b. Grouping Variable: CountryID

Belgium - Germany

Ranks

	CountryID	N	Mean Rank	Sum of Ranks
content	BEL	20	11,68	233,50
	GER	20	29,33	586,50
	Total	40		
timeliness	BEL	20	16,70	334,00
	GER	20	24,30	486,00
	Total	40		
technology	BEL	20	15,27	305,50
	GER	20	25,73	514,50
	Total	40		
user support	BEL	20	13,77	275,50
	GER	20	27,23	544,50
	Total	40		
CIRIDX	BEL	20	12,52	250,50
	GER	20	28,48	569,50
	Total	40		

Test Statistics^b

	content	timeliness	technology	user support	CIRIDX
Mann-Whitney U	23,500	124,000	95,500	65,500	40,500
Wilcoxon W	233,500	334,000	305,500	275,500	250,500
Z	-4,805	-2,708	-2,886	-3,666	-4,321
Asymp. Sig. (2-tailed)	,000	,007	,004	,000	,000
Exact Sig. [2*(1-tailed Sig.)]	,000 ^a	,040 ^a	,004 ^a	,000 ^a	,000 ^a

a. Not corrected for ties.

b. Grouping Variable: CountryID

UK - Germany

Ranks

	CountryID	N	Mean Rank	Sum of Ranks
content	UK	20	17,25	345,00
	GER	20	23,75	475,00
	Total	40		
timeliness	UK	20	17,17	343,50
	GER	20	23,83	476,50
	Total	40		
technology	UK	20	21,85	437,00
	GER	20	19,15	383,00
	Total	40		
user support	UK	20	18,27	365,50
	GER	20	22,73	454,50
	Total	40		
CIRIDX	UK	20	18,80	376,00
	GER	20	22,20	444,00
	Total	40		

Test Statistics^b

	content	timeliness	technology	user support	CIRIDX
Mann-Whitney U	135,000	133,500	173,000	155,500	166,000
Wilcoxon W	345,000	343,500	383,000	365,500	376,000
Z	-1,787	-2,463	-,743	-1,220	-,923
Asymp. Sig. (2-tailed)	,074	,014	,458	,222	,356
Exact Sig. [2*(1-tailed Sig.)]	,081 ^a	,072 ^a	,478 ^a	,231 ^a	,369 ^a

a. Not corrected for ties.

b. Grouping Variable: CountryID

Table C.5.

C.5.a. CIRIDX follows a normal distribution

One-Sample Kolmogorov-Smirnov Test

		CIRIDX
N		60
Normal Parameters ^{a,b}	Mean	45,40
	Std. Deviation	7,77
Most Extreme Differences	Absolute	,131
	Positive	,060
	Negative	-,131
Kolmogorov-Smirnov Z		1,013
Asymp. Sig. (2-tailed)		,256

a. Test distribution is Normal.

b. Calculated from data.

C.5.b. Analysis of Variance (ANOVA)

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
content	BEL	20	15,30	3,21	,72	13,80	16,80	9	21
	UK	20	19,45	2,01	,45	18,51	20,39	16	24
	GER	20	20,60	1,70	,38	19,81	21,39	18	24
	Total	60	18,45	3,29	,42	17,60	19,30	9	24
timeliness	BEL	20	4,20	1,20	,27	3,64	4,76	2	6
	UK	20	4,55	,83	,18	4,16	4,94	3	6
	GER	20	5,05	,22	5,00E-02	4,95	5,15	5	6
	Total	60	4,60	,91	,12	4,37	4,83	2	6
technology	BEL	20	7,55	2,28	,51	6,48	8,62	3	12
	UK	20	9,85	1,95	,44	8,94	10,76	6	13
	GER	20	9,60	1,73	,39	8,79	10,41	8	13
	Total	60	9,00	2,22	,29	8,43	9,57	3	13
user support	BEL	20	11,55	2,98	,67	10,15	12,95	6	20
	UK	20	13,90	2,10	,47	12,92	14,88	11	18
	GER	20	14,60	1,85	,41	13,74	15,46	12	18
	Total	60	13,35	2,67	,34	12,66	14,04	6	20
CIRIDX	BEL	20	38,60	7,98	1,78	34,87	42,33	25	54
	UK	20	47,75	5,52	1,24	45,16	50,34	36	57
	GER	20	49,85	4,23	,95	47,87	51,83	44	58
	Total	60	45,40	7,77	1,00	43,39	47,41	25	58

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
content	2,977	2	57	,059
timeliness	29,768	2	57	,000
technology	,580	2	57	,563
user support	1,133	2	57	,329
CIRIDX	4,147	2	57	,021

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
content	Between Groups	310,900	2	155,450	27,018	,000
	Within Groups	327,950	57	5,754		
	Total	638,850	59			
timeliness	Between Groups	7,300	2	3,650	5,062	,009
	Within Groups	41,100	57	,721		
	Total	48,400	59			
technology	Between Groups	63,700	2	31,850	7,952	,001
	Within Groups	228,300	57	4,005		
	Total	292,000	59			
user support	Between Groups	102,100	2	51,050	9,163	,000
	Within Groups	317,550	57	5,571		
	Total	419,650	59			
CIRIDX	Between Groups	1431,300	2	715,650	19,159	,000
	Within Groups	2129,100	57	37,353		
	Total	3560,400	59			

Pair-wise T-tests for independent samples were carried out in order to know which countries differ from one another. These showed that differences in overall reporting (CIRIDX) were significant between Belgium and the UK and between Belgium and Germany. Differences between Germany and the UK turned out to be insignificant. The same results were found for the CIRIDX components CONTENT, TECHNOLOGY and USER SUPPORT. TIMELINESS, however, is significantly higher in Germany than in Belgium and the UK. Differences in TIMELINESS between Belgium and the UK were insignificant. These results are similar to those of the non-parametric Mann-Whitney U- Tests.

Table C.6

Model Summary					ANOVA ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Model	Sum of Squares	df	Mean Square	F	Sig.
1	,723 ^a	,522	,467	5,44	1	Regression 1679,605	6	279,934	9,474	,000 ^a
						Residual 1536,497	52	29,548		
						Total 3216,102	58			

a. Predictors: (Constant), Leverage, UK, Foreign_sales, Xlisting(diffcountry), GER, Free Float

a. Predictors: (Constant), Leverage, UK, Foreign_sales, Xlisting(diffcountry), GER, Free Float

b. Dependent Variable: CIRIDX

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	31,188	4,309		7,238	,000
	UK	5,045	2,496	,323	2,022	,048
	GER	7,758	2,078	,497	3,732	,000
	Foreign_sales	6,272	2,623	,245	2,392	,020
	Xlisting(diffcountry)	,895	,528	,219	1,695	,096
	Free Float	4,276	4,519	,140	,946	,348
	Leverage	,788	4,555	,018	,173	,863

a. Dependent Variable: CIRIDX

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