INFORMATION COMPLIANCE INDEX ON INCOME TAXES:
A COMPARATIVE ANALYSIS BETWEEN 2008 AND 2012

Ilídio Tomás Lopes*
Iscte Business School – University Institute Of Lisbon
Avenida das Forças Armadas, 1649-026 Lisbon, Portugal

Fernando Dias Santos
School Of Management And Technology – Polytechnic Institute Of Santarém
Complexo Andaluz, 2001-904 Santarém, Portugal

Área temática: a) Información Financiera y Normalización Contable

Palabras clave: Información, índice de cumplimiento, impuesto de sociedades, Euronext Lisbon, auditoría

*Corresponding author
INFORMATION COMPLIANCE INDEX ON INCOME TAXES: 
A COMPARATIVE ANALYSIS BETWEEN 2008 AND 2012

Abstract

In a globalized and competitive market, stakeholders demand for more and better information towards an integrated economic and financial business comprehensiveness. Income taxes arise as a normative field (IAS 12) in which stakeholders can perceive, from an accounting and fiscal perspective, current and potential returns. Based on the annual accounts of non financial listed companies in the Euronext Lisbon regulated market, a compliance index was performed on deferred taxes. As a dependent variable, it was regressed against performance and control indicators. Research evidences some variables that can predict the information disclosure compliance level, based on IAS 12 disclosure requirements.

Keywords: information, compliance index, income taxes, Euronext Lisbon, auditing

ÍNDICE DE CUMPLIMIENTO DE INFORMACIÓN EN EL IMPUESTO DE SOCIEDADES: UN ANÁLISIS COMPARADO ENTRE 2008 Y 2012

Resumen

En un mercado globalizado y competitivo, los accionistas demandan más y mejor información para una economía integrada y los impuestos sobre la renta de sociedades de los negocios financieros están regulados por una normativa (IAS 12) en el que los accionistas pueden percibir, desde una perspectiva contable y financiera, los ingresos corrientes y potenciales .Basada en la contabilidad anual de las compañías no financieras incluidas en el índice Euronext Lisbon, se ha realizado un índice de cumplimiento basado en los impuestos diferidos. Como variable dependiente, se ha puesto en relación con el beneficio e indicadores de control a través de una regresión. La investigación pone en evidencia algunas variables que pueden predecir el nivel de cumplimiento, basado en los requerimientos de cumplimiento contenidos en IAS 12.
1. Introduction

In businesses environment, information is managed as a key resource in decision making. Used by multiple stakeholders, it should be disclosed through a structured way and should also comply with quality requirements in order to ensure its utility in the management processes and decisions. However, multiple detractors and enablers exist, driving the intensity of information disclosure. These theoretical factors are supported by several theories such as agency theory (Jensen and Meckling, 1976; Demski, 1980; Verrecchia, 2000), institutional theory (DiMaggio and Powell, 1991; Gray et al., 1996), or contingency theory (Thomas, 1991; Reid and Smith, 2000). Thus, international committees and boards (v.g. IASB, FASB, APB) tend to harmonize the accounting principles in the financial statements preparation and dissemination, including a set of topics to be disclosed in the companies’ management reports and in annual accounts statements. The effect of those harmonization principles has driven an increase in information quality towards a reliable and time based comparison of companies’ financial reports.

According to International Financial and Reporting Standards (IAS/IFRS), companies should disclose to their stakeholders a set of structured information, towards the quality assurance and business comprehensiveness (Epstein and Mirza, 2005; Bohusova and Nerudova, 2010). Thus, several topics should be disclosed such as the related-party disclosures, contingent liabilities and contingent assets, comparative information, uncertainties, and judgments and estimations. For specifics items included in the balance sheet or in the income statement, additional disclosures are required according the specific IAS/IFRS. Besides the mandatory information described in the accounting standards, the annual reports also include a set of voluntary information (Holland, 2005; Broberg et al., 2009), both influencing the market volatility (Cuzman et al., 2010). Indeed, the compliance level information disclosure can potentially influence the stakeholders’ decisions and drive the financial markets. Sector regulators and other legal institutions (v.g. sector activity regulators, securities and exchange committees, national banks, and even courts) and corporate governance committees (v.g. audit committees) have the responsibility to monitor and ensure that financial reporting is prepared and managed in accordance with legal requirements and rules. The capital market manipulation is also mitigated through the reports certification as required by international and national legislation. Audit firms play within the legal certification of accounts, an important and decisive contribution.
Information asymmetry is the focus of the information disclosure needs. Companies tend to provide to stakeholders the information they really trust and, therefore, positively influence their expected future returns, or mitigate their business and financial risks (Watson et al., 2002).

2. Aims and objectives

This research aims the identification of information disclosure compliance of IASB' international accounting standards on income taxes (IAS 12) and the identification of variables that best explain the variance the compliance index. Evidences, applied for non-financial listed companies for the years 2008 and 2012, all of them integrating the Euronext Lisbon regulated market, also constitute an overview about information disclosure and compliance, respectively four and eight years after the international accounting standards adoption in Portugal, as required by European Union. This approach also aims to provide new insights and contribute to a global and integrated index construction, structured around the overall assets and liabilities standards.

3. Information in decision making

The concept of information is nowadays broadly used. It translates everything that can be digitized, that can be converted into a set of bits and disseminated through multiple platforms. Information is a symbolic representation of a set of events, objects, and streams which requires rules in its disclosure (Shapiro and Varian, 1999). It integrates the chain of knowledge creation when data acquires meaning, when flows inside or across organizations, through multiple structured or unstructured networks. This dynamic transformation is dynamically subjected to the filters of contextualization, categorization, calculation, correction, and condensation as stated by Davenport and Prusak (1998). Hence, information is a message in itself and is vulnerable to all the noise that arose from the processes of communication.

Dretske (1983) argues that information is all that can produce knowledge while others see it as a message flow (Machlup, 1983; Nonaka, 1994). This flow of information supports the commitment and beliefs between organizations and their stakeholders. Thus, knowledge and information disclosure to the entire company value system is embedded in the traditional theories as agency theory (Spence and Zeckhouser, 1971; Fama, 1980; Demski, 1980; Basu et al., 1985; Eisenhardt, 1985; Mitnick, 1986; Kosnik,
The transformation of data into information does not develop through a linear path. It depends on the filters used in that process (Davenport and Prusak, 1998). Embedded in sense and logic, data outflows into information which embodies meaning and structure. Each transformation filter (Davenport and Prusak, 1998; Tiwana, 2002) highlights those who, in essence, can provide mechanisms for excellence in the pursuit of intrinsic formalization of corporate value. Condensation translates the aggregation process of data by carrying out the mathematical and statistical analysis while contextualization relates to the purpose of data collection, its correction, and the elimination of errors. The categorization seeks for the identification of their main components.

Assuming that information and knowledge are a key resource driven by individuals, groups, and organizations, the intensity in the disclosure process influences management decisions and stakeholders’ actions as a whole (Shackelford et al. 2011). Market volatility, as a result of economic globalization, however associated with traditional business models, increases the urgency to produce useful information that can support multiple decisions on a timely and reliable basis. The accounting harmonization effort that we have experienced in the last decades, comply with the need of information quality. This is not merely a mechanism of standardization but fundamentally a mechanism to ensure the comparability of the information produced, in a scattered way, in the context of a globalized market. As a result of the unquestionable advances in the information and communication technologies, many users and agents are more experienced with regard to the usefulness of the information. Organizations develop increasingly sophisticated systems that provide the information on a time based way (Moahamed et al., 2010). This revolution in the concepts of time and space is one of the leading brands of digital revolution that has marked the last two decades. So far, information is disseminated to stakeholders through multiple platforms, however improvements are required regardless its structuring and comprehensiveness. This increase is also associated with the development of integrated management and control systems.
The sophistication of those systems, through a dynamic two-way relationship, is characterized by the integration of financial and non-financial information, but also from its predictive nature. Management control systems have acquired flexibility, by enabling organizations to identify trends and warning signs which facilitate the implementation of emerging strategies. Characterized by their multiple languages, these systems integrate both internal and external information (quantitative and qualitative). Qualitative information is becoming increasingly important as part of the integrated financial reporting. Thus, this evidence can be found in the international accounting standards, especially in the topics related to the information disclosures requirements. Although it is mandatory to disclose the information required by accounting standards, there is still some resistance to its disclosure, which can be explained by the theories mentioned above.

4. Information disclosures

4.1. Background theories

The accounting information disclosure to stakeholders is strongly influenced by several theories, including the agency theory principles. Broadly, this theory has been incorporated in multiple scientific fields, particularly in accounting (Demski, 1980), in economics (Spence and Zeckhouiser, 1971), in marketing (Basu et al., 1985), in political science (Mitnick, 1986), in finance (Fama, 1980; Fontrodona and Sison, 2006), in behaviour and organizational culture (Eisenhardt, 1985; Kosnik, 1987; Kulik, 2005) and in sociology (White, 1985; Shapiro, 2005). However, the controversy over its usefulness, applicability and validity, remains valid even today. It was developed during the 60s and the early 70s XX century, by several economists, including Arrow (1971) and Wilson (1968). It translates the problem of attitude to risk either by individuals and/or by groups (Ross, 1973). The differentiation of objectives inherent to those parties that leads their attitude is also different. Those are relations between the principal and agent, metaphorically supported by a contract-oriented behaviour of parties who take different attitudes towards risk (Jensen and Meckling, 1976).

According to Eisenhardt (1989), the agency relationship arises between two or more parties in a designated agent, acting for the other, called the main field in a particular decision. Acting both parties in favour of their own interest, the principal conducts its action to minimize costs, the agent in order to minimize their action. According Jensen and Meckling (1976), the agency costs correspond to the sum of the costs of
monitoring by the principal (associated with the incentives of the agent and the monitoring process of their activity), expenses of the undertaking by the agent (associated with resources spent by the agent to compensate the principal for inappropriate actions) and residual losses (associated with the degree of divergence between the agent's decisions and the decisions that potentially maximize the well-being of principal).

The paradigm of the usefulness of information for decision-making is now one of the key issues in the designing process towards the information dissemination to their stakeholders. The profound changes that have occurred in the economies in general and in particular business models require information to be disclosed in a timely manner and meeting the expectations of its users. However, many are the factors that determine the type, timing and intensity with which this information is disseminated.

There are several theories that have explained the various factors that influence the information disclosure drivers. However, it is our understanding that the factors that determine the dissemination of information result from a symbiosis between the business complexity and stakeholders’ needs. Each of those theories has its basis in the social contract, established between the company and its stakeholders, creating internal mechanisms to respond to changes that occur in the environment.

The contingency theory assumes a theoretical perspective that contingencies such as size, uncertainty and risk, technology and environmental pressures affect the organization’s development and operating processes. Thus, organizations cannot develop a standard framework to plan, organize and control their own activities. The second theory (institutional) considers that organizations should adapt to external expectations, so there external pressures to implement appropriate practices to disseminate information. The fact that organizations tend to implement the same structures and practices along time as a response of social requirements is designated in the literature as institutional isomorphism (DiMaggio and Powell, 1991). The theory of legitimacy is based on the notion of the social contract between the reporting entity and the society in which it operates (Guthrie et al., 2004). The dissemination of information is one way to relieve social pressure and legitimate their organizational activities.

The usefulness issue of the information management has a diffuse scope, based on multiple drivers: the type of information user, their information needs, the emerging
pressure from the capital markets, the changes occurred in the environment in which organizations develop their activities and even regulatory requirements often resulting from political decisions. Indeed, we cannot link a particular theory to the entities and stakeholders' behaviours, regarding the dissemination of information. Those theories have specific determinants that embody the individual and collective behaviours. These behaviours derive from the symbiosis assumptions which are inherent to each particular theory.

In this context, we assume that companies have a certain level of resistance in the disclosure of their liabilities. Stakeholders usually associate those liabilities to short or long term financial risk which detracts companies to voluntarily disclose this type of information. Although those disclosures are mandatory according international accounting standards, most of them do no comply with those requirements. This assumption supports the need to identify a “Disclosure Index” (DI) for the main liabilities recognised in the companies’ financial statements, such as provisions and deferred taxes.

### 4.2. Income taxes

The issue of disclosure of the income taxes topics arises associated with the characteristic of the understandability of financial information. The breadth and clarity of accounting disclosure are highly dependent on the preparers of financial information. According to Meek et al. (1995), voluntary information only occurs in cases in which the benefits outweigh the costs. Although IAS 12 enumerates the requirements in terms of qualitative and quantitative extent of the topics to be disclosed, the content and form remain dependent on the discretion of the preparer of financial statements and related information.

Deferred taxes liabilities are the amounts of income taxes payable in future periods in respect to taxable temporary differences. Hence, taxable temporary differences result in taxable amounts when the carrying amount of the asset or liability is recovered or settled. With regard to income taxes, IAS 12 establishes that, whenever applicable, company should disclose the following structured topics:
<table>
<thead>
<tr>
<th>ICI&lt;sub&gt;n&lt;/sub&gt;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICI&lt;sub&gt;1&lt;/sub&gt;</td>
<td>Current tax expense.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;2&lt;/sub&gt;</td>
<td>Adjustments in current period.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;3&lt;/sub&gt;</td>
<td>Identification and description of temporary differences.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;4&lt;/sub&gt;</td>
<td>Use of previous year’s benefits or other income taxes credits.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;5&lt;/sub&gt;</td>
<td>Deferred tax expense arising from the write-down, or reversal of a previous write-down.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;6&lt;/sub&gt;</td>
<td>The amount of tax expense relating changes in accounting policies.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;7&lt;/sub&gt;</td>
<td>Deferrals associated to items directly charged or credited in the equity.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;8&lt;/sub&gt;</td>
<td>Reconciliation between tax expense and accounting profit.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;9&lt;/sub&gt;</td>
<td>Changes in the applicable tax rate.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;10&lt;/sub&gt;</td>
<td>Amount and expiration dates of deductible temporary differences and other related items.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;11&lt;/sub&gt;</td>
<td>Deferred taxes associated to investments in subsidiaries, branches and associates, and interests in joint ventures.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;12&lt;/sub&gt;</td>
<td>Identification of the amount of deferred tax assets and liabilities recognized in the statement of financial position for each period.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;13&lt;/sub&gt;</td>
<td>The amount of the deferred tax income or expense recognized in profit or loss.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;14&lt;/sub&gt;</td>
<td>Description of the income taxes consequences in dividends to shareholders.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;15&lt;/sub&gt;</td>
<td>Other deferred taxes related to business combinations.</td>
</tr>
<tr>
<td>ICI&lt;sub&gt;16&lt;/sub&gt;</td>
<td>If applicable, income taxes impact resulting from discontinued operations or operational segments.</td>
</tr>
</tbody>
</table>
We believe that those disclosure requirements are complex and, even in a holistic way, this may constitute a severe inhibitor to disclosure behavior. Thus, the financial reporting will be incomplete which implies a weak utility of the annual accounts and consequently the operations comprehensiveness and prediction level relating current and future returns. As evidenced by Amir et al. (1997), the omission of information relating income taxes are negatively associated with expected futures returns that flow to the entity. The omission of those effects undermines the completeness of financial information. To disclose information about deferred taxes is really relevant to stakeholders (Amir et al., 1997). Investors usually associate the disclosure of deferred taxes on revaluation of tangible and intangible assets with the expectation of continuous investments in depreciable and amortizable assets. Evidences obtained by Chaney and Jeter (1989) and by Colley et al. (2006) also show a positive association between deferred taxes recognition and company’s capitalization. The market seems to recognize and incorporate the continuity of operations and their effects in terms of a desirable future returns.

4.3. Information compliance indexes

The construction of an Information Disclosure Index is a common technique to aggregate information in several scientific fields, especially in social sciences, and in particular in economics. In management and accounting, the same approach has been followed in order to identify the intensity and level of information reporting (Skinner, 1994); Wallace and Naser, 1995; Cooke, 1998; Bushee and Noe, 2000; Barako et al., 2006; Al-Shammari et al., 2008; Dragu and Tudor, 2011; Mutawaa and Hewaidi, 2010; Broberg et al., 2010). In this regard, Dragu and Tudor (2011) have regressed the disclosure index of borrowing costs (IAS 23) with multiple variables (v.g. turnover, return on assets, return on equity, total sales, debt rate, solvency) and have evidenced that an increase in debt rate would generate increased disclosure while an increase in solvency, in return on equity (ROE) and in return on assets (ROA), would mean lower quantities of disclosed information. Meanwhile, Mutawaa and Hewaidi (2010) found a negative association between leverage and disclosure compliance level (dependent variable). A positive and significant association was found between disclosure compliance level and company size, and sector of activity. These evidences corroborate the previous evidences provided by Wallace and Naser (1995) and Al-Shammari et al. (2008). Type of auditing company (Big4) is also positively associated to the dependent variable, however not statistically significant.
Broadly, information disclosures are significantly associated to company size which means that large companies provide more mandatory and even voluntary disclosures than in SMEs (Wallace and Naser, 1995; Al-Shammari et al., 2008; Mutawaa and Hewaidi, 2010; Dragu and Tudor, 2011; Arvidsson, 2011). Relating key profitability indicators such as ROE or ROA, evidences are not convergent (Wallace et al., 1994; Street and Gray, 2002; Al-Shammari et al., 2008; Broberg et al., 2010; Dragu and Tudor, 2011) which means that other variables exist that drive the effective information compliance and disclosure.

5. Methodology

5.1. The data source

This research is based on 47 non-finance companies for the year 2012 and on 40 non-finance companies for the year 2008. All of them were listed in the Euronext Lisbon regulated market, with reference to 31 December 2012 and to 31 December 2008, respectively. Financial data was collected from the DataStream database and information associated to dependent variable was collected through a content analysis (Abraham and Cox, 2007), based on companies’ annual consolidated accounts.

5.2. Towards a compliance and disclosure index

Information disclosure level can be measured through several approaches (Arvidsson, 2011), including the construction of an index metric (Mutawaa and Hewaidi, 2010; Oliveira et al., 2010; Dragu and Tudor, 2011). The compliance index (CI) for each company can be obtained through the ratio between the total of items disclosed by the company and the sum of the items that should be disclosed to stakeholders. The first step in this research consists in achieving the disclosure index for income taxes. The non weighted index will be computed as follows:

$$ICI_i^j = \frac{\sum_{i=1}^{n} y_i^j}{TD_i^j}$$ (1)

Where:

$ICI_i^j$ - Disclosure index for IAS$_j$ in company $i$

$y_i^j$ - Disclosure observed in company $i$ for IAS$_j$
This index will be integrated in a multiple linear regression model as a dependent variable. This is an un-weighted index which is assumed that all items are considered with the same level of importance to many users of financial statements. The use of weighting factors would imply a previous study of the importance attributed by many users of information, for each of the elements considered. Thus, the results would be eventually biased by subjective factors.

5.3. The variables

In the first step, we have looked for the construction of a disclosure index on income taxes (ICI). This index was included in the regression model as a dependent variable, illustrating the level of compliance about information disclosures, according IAS 12. Independent variables and corresponding signs are broadly supported by agency theory, legitimacy theory, contingency theory, and institutional theory (Demsiki, 1980; Dowling and Pfeffer, 1975; Thomas, 1991; DiMaggio and Powell, 1991, Reid and Smith, 2000; Guthrie et al., 2004; Chapman et al., 2009). The literature review also supports our assumptions and variables signs, in particular Cooke (1998), Bushee and Noe (2000), Barako et al. (2006), Dragu and Tudor (2011), Mutawaa and Hewaidi (2010), Broberg et al. (2010), and Oliveira et al. (2010).

Table 2 - Variables description and framework

<table>
<thead>
<tr>
<th>VARIABLE TYPOLOGY</th>
<th>VAR.</th>
<th>DESCRIPTION</th>
<th>PREDICTED ECONOMIC SIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPENDENT</td>
<td>ICI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INDEPENDENT</td>
<td>DIM</td>
<td>Natural logarithm of total assets</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>ROA</td>
<td>Return on assets (Net Income/Total Assets)</td>
<td>+/-</td>
</tr>
<tr>
<td></td>
<td>ROE</td>
<td>Return on equity (Net Income/Equity)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>EBITDA</td>
<td>Natural logarithm of earnings before interests, taxes, depreciation and amortization</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>DEB</td>
<td>Debt ratio (Debts/Total Assets)</td>
<td>-</td>
</tr>
</tbody>
</table>
BGROW Business growth between 2011 and 2012 and between 2007 and 2008

NIGROW Net income growth between 2011 and 2012 and between 2007 and 2008

AUDIT Auditing company (1 – Audited by a Big4 company and 0 otherwise)

SEC Activity sector

The dummy variable AUDIT assumes 1 if annual management report was certified by a big4 auditing company and 0 otherwise. Companies are aggregated in seven activity sectors as follows: 1. Consumer services and transportation; 2. Equipments and industry; 3. Construction and infrastructures; 4. Technologies and communications; 5. Consumer materials; 6. Petrol and energy; and 7. Media and advertising.

5.4. The regression model

In order to identify which variables (Xᵢ; i=1,…k) best contribute to explain the variance of dependent variable, the model stated below has been regressed for the income taxes compliance index.

\[
\hat{ICI} = \beta_0 + \beta_1 DIM_{ij} + \beta_2 ROA_{ij} + \beta_3 ROE_{ij} + \beta_4 EBITDA_{ij} + \beta_5 DEB_{ij} + \beta_6 BGROW_{6j} + \beta_7 NIGROW_{7j} + \beta_8 AUDIT_{8j} + \beta_9 SEC_{9j} + \varepsilon
\]

(1)

Thus, all variables were simultaneously introduced in the model in order to identify which ones can predict (rejection of \( H_0: \beta_1=\beta_2=…=\beta_9=0; \ p<\alpha \)) the information compliance index on income taxes, for non-finance listed companies, in 2008 and 2012.

6. Results and discussion

6.1. Descriptive measures

In 2012, the sector of consumer services and transportation integrates 11 companies (23,4%) while the sector of basic equipments and industry represents 21,3% (10) of
total companies. These two sectors represent, in 2008, 55% of the total companies. The overall distribution by sector is evidenced in the graph below.
In order to provide an integrated overview about the variables included in the research, we summarize in Table 3 the basic descriptive measures such as minimum, maximum, mean, and standard deviation.

**Table 3 - Descriptive measures (2008/2012)**

<table>
<thead>
<tr>
<th>VAR.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0,07</td>
<td>0,00</td>
<td>0,93</td>
<td>0,98</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIM</td>
<td>6,963</td>
<td>7,143</td>
<td>10,277</td>
<td>10,31</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>92</td>
</tr>
<tr>
<td>ROA</td>
<td>-</td>
<td>-</td>
<td>8,91</td>
<td>15,00</td>
</tr>
<tr>
<td></td>
<td>62,19</td>
<td>-78,16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>-</td>
<td>-</td>
<td>20,23</td>
<td>56,10</td>
</tr>
<tr>
<td></td>
<td>586,6</td>
<td>190,8</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>EBITDA</td>
<td>7,762</td>
<td>5,648</td>
<td>9,368</td>
<td>9,142</td>
</tr>
<tr>
<td>DEB</td>
<td>43,46</td>
<td>27,93</td>
<td>305,02</td>
<td>533,8</td>
</tr>
</tbody>
</table>
The Information Compliance Index (ICI) on income taxes has improved aprox. 20% between 2008 and 2012, as evidenced by variable mean (0.4574 and 0.5470, respectively). However, the mean of business growth variable (BGROW) has decreased about 200%. This evolution is probably related to the financial crises (including sovereign debts crises) which started in latest 2008.

Relating auditing services, the companies’ annual accounts were certified by a Big4 auditing company, in 24 (60%) of cases, in the year 2008. In 2012, Big4 reinforces their position, certifying the annual accounts 72% of total cases. Complementarily, we found a positive and significant association between this variable and the information compliance index on income taxes, for both years under analysis ($\chi^2=22.361; \text{df}=13; p=0.000$ and $\chi^2=22.361; \text{df}=13; p=0.000$, respectively).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Xn</th>
<th>Variable</th>
<th>Xp</th>
<th>$\chi^2$</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Person’s Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICI2008</td>
<td>AUDIT</td>
<td>22,361</td>
<td>13</td>
<td>0,048</td>
<td>0,575* (0,000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>1253,33</td>
<td>1232</td>
<td>0,006</td>
<td>0,403* (0,005)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EBITDA</td>
<td>1316,00</td>
<td>1288</td>
<td>0,013</td>
<td>0,360** (0,013)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICI2012</td>
<td>DEB</td>
<td>1316,00</td>
<td>1288</td>
<td>0,002</td>
<td>-0,431* (0,002)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUDIT</td>
<td>42,00</td>
<td>28</td>
<td>0,001</td>
<td>0,474* (0,001)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*<0,01 **<0,05 ***<0,1
Other significant associations were identified between ICI and other variables such as ROA, EBITDA, and DEB (Table 4). Although not statistically significant, DIM is positively associated with the index which corroborates the literature (Mutawaa and Hewaidi, 2010; Dragu and Tudor, 2011). Broadly, larger companies tend to disclose higher levels of information, in accordance with IAS 12, in order to respond to the increase in the stakeholders information needs. EBITDA, as a sustainability key performance indicator, is significantly associated the index only for the year 2012 ($\chi^2=1316,00; df=1288; p=0,013$).

### 6.2. The regression model

One of the main objectives in this research is to identify a set of variables that best explain the variance in the information disclosure level by the companies listed in the Euronext Lisbon. Furthermore, it also aims to provide the literature with additional insights in this scientific topic. Ordinary Least Squares (OLS) multiple regression were used to test the relationships between the various independent variables and control variable, and ICI. Outliers were removed from the analysis.

**Table 5. Regression models summary**

<table>
<thead>
<tr>
<th>VAR.</th>
<th>ICI$_{2008}$</th>
<th>ICI$_{2012}$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>Sig.</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-0,669</td>
<td>0,285</td>
</tr>
<tr>
<td>DIM</td>
<td>0,106</td>
<td>0,150</td>
</tr>
<tr>
<td>ROA</td>
<td>-0,008</td>
<td>0,143</td>
</tr>
<tr>
<td>ROE</td>
<td>0,001</td>
<td>0,086***</td>
</tr>
<tr>
<td>EBITDA</td>
<td>0,003</td>
<td>0,813</td>
</tr>
<tr>
<td>DEB</td>
<td>-0,214</td>
<td>0,335</td>
</tr>
<tr>
<td>BGROW</td>
<td>0,049</td>
<td>0,748</td>
</tr>
<tr>
<td>NIGROW</td>
<td>-0,125</td>
<td>0,590</td>
</tr>
<tr>
<td>AUDIT</td>
<td>0,368</td>
<td>0,001*</td>
</tr>
<tr>
<td>SEC</td>
<td>0,190</td>
<td>0,231</td>
</tr>
</tbody>
</table>

- $R^2=0,534$  
- $F=3,694$   
- Sig. 0,003$^*$

- $R^2=0,632$  
- $F=6,437$   
- Sig. 0,000$^*$

$^*<0,01$ $^**<0,05$ $^***<0,1$
Information disclosure on income taxes is positively correlated with company size (DIM), EBITDA, BGROW, AUDIT and sector of activity (SEC), however not significantly. Otherwise, it is negatively correlated with ROA (p-value<0.05), debt ratio and business growth rate, but only significant for debt ratio. Corroborating the evidence provided by Dragu and Tudor (2011), an increase in debt rate (DEB), in return on equity (ROE) and in return on assets (ROA), is associated to lower quantities of information disclosure and normative compliance. A positive association was also found between disclosure compliance level and company size, and sector of activity. Thus, the sector of activity signs positively the level of information compliance. Lower compliance indexes rates are observed in consumer services and transportation sector, and in basic equipment and industry sector.

The regression models are statistically significant for a 1% for 2008 and 2012 ($R^2=0.534; F=3.694; \text{Sig.0.003}$ and $R^2=0.632; F=6.437; \text{Sig.0.000}$, respectively). Although several variables are not statistically significant, the regression equation for 2012 is evidenced towards an integrated predictive outlook.

\[
ICI = -0.954 + 0.165 \; DIM - 0.089 \; ROA - 0.044 \; ROE + 0.278 \; EBITDA \\
- 0.344 \; DEB + 0.046 \; BGROW - 0.357 \; NIGROW + 0.4051 \; AUDIT + 0.331 \; SEC
\]

This equation can be used as a proxy to predict the compliance level of information disclosure on deferred taxes.

Most of the evidences achieved with current research corroborate other insights emerged from the literature review. Hence, those evidences arise as new knowledge in the scope of financial information disclosure levels, namely on compliance with IAS 12.

7. Conclusions and research limitations

Several insights about information disclosure have been produced over the last decades. However, in globalized and volatile markets, the topic relevance increases as a result of the businesses complexity and more decentralized stakeholders. Thus, the compliance of information disclosure with international accounting standards is the most visible way to provide an outlook weather companies comply with their legal information disclosures obligations. Liabilities are potentially the most important
inhibitor as far as stakeholders associate those liabilities as an overall risk level indicator.

Through a content analysis, an information disclosure index on income taxes was computed for the years 2008 and 2012. From an economically perspective, we decided for the year 2008 as the beginning of the sovereign debts crises in most European countries, including Portugal This index was after regressed as the dependent variable with a set of independent variables such as size, profitability indicators, debt ratio, auditing, and activity sector. The models computed for both years are statistically significant, contrary to what occurs with some isolated variables. Positive associations were obtained between disclosure indexes and some variables such as EBITDA, Return on Assets, Debt Ratio, Net Income Growth Rate, Auditing Company, and Activity Sector. Thus, the compliance level with IAS 12 is driven by financial and non-financial indicators. The extent in the sample size could refine those evidences and provide additional insights on the topic.

As further research, a disclosure index should be computed for a large range of time, in order to evaluate the trend in the intensity disclosure procedures. Thus, acting the year as a control variable, some economic effects could be observed and economically interpreted. Furthermore, specific detractors and enablers in the information disclosure behaviour can also be found if the analysis could be carried out for particular regions and countries.

References


