

# CORPORATE GOVERNANCE AND INTELLECTUAL CAPITAL DISCLOSURE. AN EMPIRICAL ANALYSIS OF THE ITALIAN LISTED COMPANIES

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## Abstract

Intellectual capital (IC) as well as disclosure of information on IC has in recent years gained importance. IC is the key issue in strengthening a firm's competitive position and in achieving its objectives. The purpose of this study is to investigate some determinants of the disclosure of IC in annual reports. In particular the aim of this research is to analyse the internal mechanisms of corporate governance (board composition, role duality, ownership structure, auditor type and size of audit committee), which influence the intellectual capital disclosure in corporate annual reports for a sample of all listed Italian firms at 31<sup>st</sup> December 2010. It has been used a disclosure index as a dependent variable, (ICD), and the method used to measure it is content analysis.

**Keywords:** Intellectual Capital, Disclosure, Board, Ownership, Aditor, Duality, Annual Reports

## 1. INTRODUCTION

In recent years, the socio-economic environment in which companies operate has changed considerably. A growing attention has been paid to intangibles as representing the main drivers for creating enterprise value, especially in the medium and long term. In today's contexts of high competitiveness and instability, these resources correspond to distinctive competencies that are the best suited to gain a stable competitive advantage.

The importance of Intellectual Capital (IC) resources in firm's value creation process has continuously increased due to the transition from manufacturing-based economies towards knowledge-based economies.

The increased importance of IC results in a reduction of the valuation relevance of financial statement information since general accepted accounting standards hardly capture IC, do not require recognition of IC in the financial statements. Users, as investors or financial analysts, therefore increasingly demand firms to voluntarily disclose their intellectual resources to be able to judge firm's performance and value.

Numerous studies focused on the voluntary disclosure of IC by firms, in particular they investigated the status of IC disclosure practices in a particular country or the relationship between the IC disclosure and a variety of relevant impact factors, such as industry, size, performance.

Apart from investigating the amount of intellectual capital related information it is

important to investigate factors that influence disclosure patterns on this issue.

At present, still very little is known about the main determinants of variations in the level of IC disclosure presented in different companies' balance sheets, such as the influence of some governance mechanisms.

The justification for considering corporate governance is that the board of directors manages information disclosure in annual reports and therefore constituents of boards may be important. This argument can be extended to intellectual capital disclosure, whereby management can determine the level of disclosure and thereby reduce investor uncertainty relating to the impact of intellectual capital on the firms' value. Adoption of internal control devices, such as independent directors and separation of the roles of chairman and chief executive, may enhance monitoring quality in critical decisions about intellectual capital investment and performance. This is likely to reduce the scope for managerial opportunism and reduce benefits from withholding information and, as a consequence, intellectual capital disclosure in annual reports should be improved.

This circumstance leads to analyse the corporate governance mechanisms that influence voluntary disclosure of intangibles. IC information can be defined as the knowledge, intellectual property and experience that can be put to use to create wealth (García-Meca and Martínez, 2005). In the current information age, IC has replaced fixed assets as the most important value driver for companies.

Therefore, it should be interesting to analyse and evaluate the possible effects of such corporate governance elements on the level of IC voluntary disclosure in the area of Italian listed companies. This study contributes to understanding of the corporate reporting of intellectual capital by revealing associations between disclosure of IC and characteristics of firms. In particular, it enhances understanding of the determinants of disclosure of IC in a small capital market of a country characterized by small and medium enterprises whose managers generally do not perceive capital market to be an important source of financing.

The remainder of this paper is organized as follows. Section Literature review defined IC in its three main elements and reviews the literature on corporate governance and voluntary disclosure focused on ownership concentration, board independence, size of Board and type of auditors. Section Research Methodology presents the technique used and the description of the sample and variables. In the Results section it provides the results whereas the final section, conclusion and limitations, summarizes the paper and indicates future research directions.

## 2. LITERATURE REVIEW

### 2.1 Defining IC

A number of studies focus on the voluntary disclosure of IC by firms. These studies usually investigate the status of IC disclosure practices in a particular country (e.g. Abeysekera and Guthrie, 2005; Bozzolan *et al.*, 2003; Goh and Lim, 2004; Oliveras *et al.*, 2008; Yi and Davey, 2010), or survey the associations between the extent of IC disclosures and a variety of relevant impact factors, such as industry, size, performance, etc. (e.g. García-Meca *et al.*, 2005; Li *et al.*, 2008; Oliveira *et al.*, 2006; Singh and Van der Zahn, 2008).

It is noted that most previous studies into voluntary IC disclosure focused on the impact of company characteristics on the extent of voluntary disclosure Guthrie e Petty, 2000; Brennan, 2001; Bozzolan *et al.*, 2003; Guthrie *et al.*, 2004; Abeysekera e Guthrie, 2005; Bukh *et al.*, 2005; Petty e Cuganesan, 2005; Guthrie e Abeysekera, 2006; Vergauwen *et al.*, 2007; Abeysekera, 2008; Oliveira *et al.*, 2008; Rashid, 2010). In recent years, one of the most discussed topics in this field has been how corporate governance mechanisms may be associated with voluntary disclosure practice (Cerbioni and Parbonetti, 2007; Li *et al.*, 2008; García-Meca and Sánchez-Ballesta, 2010).

IC is viewed as intangible assets or knowledge resources which can create value for firms as achieve and maintain a competitive edge for them (Stewart, 1997; Sveiby, 1997; Yi and Davey, 2010; Yi and Eggleton, 2011).

One of the earliest and most workable definitions of IC is that offered by the Organization for Economic Co-operation and Development (OECD 1999) which describes IC as the economic value of two categories of intangible assets of a company: a) organizational or structural capital and b) human capital.

Over time, researchers in the field (e.g. Abeysekera, 2007; Guthrie and Petty, 2000) have

developed that IC is composed of three elements: internal, external and human capital (Edvinsson and Malone, 1997; Stewart, 1997; Sveiby, 1997).

*Internal capital* refers to the knowledge embedded in the organizational structures, processes, procedures, routines, systems and culture, which is created by employees or brought in. It includes patents, research and development, technology and systems (Petty and Cuganesan, 2005; Yi *et al.*, 2011).

*External capital* refers to the knowledge embedded in the relationships external to the organization. It comprises relationships with suppliers, customers, business partners, brand names, etc.

*Human capital* refers to the individual's knowledge such as qualifications, skills/competences, training and education, experiences and values characteristics of an organization's workforce.

### 2.2 IC disclosure

The reporting activity of a number of firms mainly in Europe, has caused a rethink of traditional financial reporting. Traditional financial accounting reports do not require the IC of a company to be reported (Guthrie *et al.*, 1999; Petty and Cuganesan, 2005). This creates information asymmetries among shareholders and other stakeholder groups and possible confusion regarding what is really of value in the business. To compensate for the limitations of the traditional accounting reporting environment, it has been suggested that IC be reported voluntarily by companies to better address stakeholder information needs.

According to the FASB (2001), the term "voluntary disclosure" describe disclosure that are not explicitly require by generally accepted accounting principles (GAAP) or specific country rules. The decision to disclose additional information is modelled in terms of a cost-benefit framework (García-Meca and Sánchez-Ballesta, 2010).

Given that firms are not required by accounting standards or by law to report on most of their IC, they must voluntarily elect to disclose such information. There are clear incentives for companies to do this, although it may be the case that companies are not fully aware of them.

The primary incentive for most firms to disclose their IC is to "render the invisible visible". If IC is not reported, there is a risk that it is not receiving sufficient attention from management (Guthrie and Petty, 2000).

Considering corporate disclosure in capital markets, two basic functions are attributed on disclosure of information by listed companies (Alvino, 2000): an informative function, which allows investors and market participants making choices and operations of investment and disinvestment; and a reporting function, which is directed at the economic-financial evaluation of the final results of business choices and the related transactions. The combination of these two features enables investors and other market participants to use corporate information as a tool of knowledge and valuation of its investment expectations. In this interpretation of corporate information is therefore emphasized the central role it assumes in the capital markets and

that coincides with the establishment of conditions for proper functioning of the market (Cordazzo, 2007, p. 15).

Various studies on information requests from analysts and investors show a substantial difference between the type of information contained in the annual reports and the type of information requested by the market (among others, Eccles *et al.*, 2001; Eccles and Mavrinar, 1995). In general, investors and analysts require more reliable information on the quality, expertise and managerial experience, relationships with customers, skills and capacity of staff, all factors related to intellectual capital (Bukh, 2003). Companies have become, therefore, aware of the importance of systematically communicate information about intellectual capital (Bukh, 2003).

Mohd Saleh *et al.* (2010), through interviews, showed some reasons underlying the disclosure of intellectual capital. First, they found that the main reasons are those to give information about the corporate culture and future strategic directions. Then emerge other reasons: 1) to attract and retain the quality of the workforce, and 2) to attract and retain customers of the products or services produced by the company, and 3) to enter into strategic alliances and synergistic stronger with the various partners; 4) for the community, and finally, 5) for the capital market.

The information provided on intellectual capital can attract employees, customers, investors, suppliers. This is consistent with the stakeholder's theory, which sees stakeholders as parties who have an interest in the company and that the company has a duty to fulfill their information needs (Donaldson and Preston, 1995).

In relation to predictors of ICD, a number of studies have examined the influence of size and industry on the ICD practices of listed companies (Bozzolan *et al.*, 2003; Firer and Williams, 2003).

Bozzolan *et al.* (2003), in looking at a sample of Italian companies, found both size and industry to be relevant in explaining reporting differences. Williams (2001) also found size and industry have an influence on quantity of ICD.

Guthrie and Petty (2000) have considered a sample of 19 listed Australian companies to study the voluntary disclosure on intellectual capital. The results of their research showed that, despite the general awareness of the importance of intellectual capital and their role in ensuring a long-term organizational success, few companies have taken significant initiatives to provide information about it. They found that 40% of the sample reported information on external capital, demonstrating that the items on the customer are perceived as crucial by Australian managers.

Williams (2001), examining the annual reports of 31 companies listed in the UK market from 1996 to 2000, noted significant changes in the amount of disclosure of intellectual capital between the company and that company-specific factors, such as the level of debt, the type of industry, influence the level of intellectual capital disclosure. The study by Beaulieu *et al.* (2002), who examine the amount of intellectual capital in 30 companies listed in Sweden, indicate that there is a positive relationship between the size of the company and the amount of disclosure on intellectual capital. This type of

relationship is also supported by García-Meca *et al.* (2005a). However, this type of relationship is not supported by Bontis (2003), who conducted an investigation of intellectual capital disclosure by taking as a reference the annual reports of 10,000 Canadian corporations.

Determinants of intellectual capital disclosure identified in the literature include the size of the company (among others Bozzolan *et al.*, 2003; Nurunnabi *et al.*, 2011; Meek *et al.*, 1995), the type of industry (among others Meek *et al.*, 1995), the level of debt (Hossain *et al.*, 1995), profitability (Haniffa and Cooke, 2002). There has been also some studies on the effect of some variables of corporate governance, such as ownership concentration (Haniffa and Cooke, 2002), the size of the audit (Nurunnabi *et al.*, 2011), the size of the Board, the proportion of independent directors, the frequency of meetings of the audit, on intellectual capital disclosure (Cerbioni and Parbonetti, 2007, Li *et al.*, 2008). In general, the size of the company and the industry are significant variables (Bozzolan *et al.*, 2006; Brügggen *et al.*, 2009), but the results of the other variables are not unique.

As already said, in the last years corporate governance characteristics have received great attention in the disclosure literature.

To date there are few studies that analyze the influence of corporate governance on the disclosure of intangibles. Most previous studies have focused on measuring the size of the information on intellectual capital reported in the annual reports, but few seek to identify the specific characteristics, the drivers that determine the difference in disclosure between companies and between countries. In addition, a limited number of studies have addressed the effect of corporate governance on the disclosure of intellectual capital (Cerbioni and Parbonetti, 2007, Li *et al.*, 2008, Hidalgo *et al.*, 2011).

Cerbioni and Parbonetti (2007) examined the intellectual capital disclosure with reference to the European biotechnology companies. Their study is interesting because it examined both the quantity and the quality of the relationship between disclosure about intellectual capital with some elements of corporate governance of companies, such as the size of the board, the proportion of independent directors and the presence of the CEO. Courtney and Cheng (2006) in their study examined the relationship between the board and the level of voluntary disclosure, finding that companies with a higher proportion of independent directors have a higher voluntary disclosure, although the size of the board is not associated with the voluntary disclosure.

Another interesting study is the one conducted by Li *et al.* (2008), who examined 100 UK listed companies with the aim of identifying the influence of certain attributes related to corporate governance, such as the presence of the CEO, the composition of the board of directors, the ownership structure, the size of the audit on intellectual capital disclosure.

Hidalgo *et al.* (2011) carried out a systematic analysis of some variables of corporate governance and other business-specific factors that influence the decision to bring in the annual report information related to intellectual capital. They focused on the inner workings of the Board of Directors, by analyzing the proportion of

independent directors, the size of the audit and the duality between the Chairman of the Board of Directors and the CEO. They also consider the ownership structure, which examines the number of shares held by executive directors and other members of the Board of Directors, the shares held by institutional investors and the number of shares owned by the majority shareholder.

The present work is related to studies that examine the effects of some characteristics of the company and corporate governance on the level of disclosure, which in recent years have received increasing attention (Cerbioni and Parbonetti, 2007; Patelli and Prince, 2007; Li et al., 2008; García Sánchez-Meca and Ballesta, 2010, Hidalgo *et al.*, 2011).

The business system in Italy is characterized by high concentration of ownership, with a limited separation of ownership and control by significant presence of pyramidal groups of matrix mainly family and finally a significant intervention by institutional investors (Fortuna, 2001, Mazzotta, 2007). Agency theory shows that the separation between ownership and control in companies creates a situation of moral hazard where managers act on their economic interests (Jensen and Meckling, 1976). In the changing environment of today's reporting, managers should understand the importance and address the economic consequences of the decision not to provide the information about intellectual capital of a company.

Some particular characteristics of corporate governance mechanisms, such as the independence of the board of directors or the separation of the roles of President of Board and CEO, is to improve the quality of monitoring and reducing the benefits for managers to hide information. In this sense, one of the most recent and widely discussed in the academic literature and in the business press is how design corporate governance mechanisms to improve the transparency of the company and to solve the problem of asymmetric information arising from the separation of ownership and control (Hidalgo *et al.*, 2010).

It is clear that over the years there have been numerous studies had as object intellectual capital disclosure. Since these studies were conducted primarily in countries different from the Italian context, the objective of this study is to analyze the main determinants of intellectual capital disclosure, and in particular, to study the influence of some elements of corporate governance on the level of intellectual capital disclosure in relation to the annual reports of Italian listed companies. To date, the relationship between some corporate governance variables and the level of intellectual capital disclosure was not conducted any study in Italy. In addition, compared to studies carried out in Italy, Bozzolan *et al.* (2003 and 2006), this study is different for two reasons: a) first of all because it takes into account all the Italian listed companies, except those belonging to the financial sector, and b) because it studies the relationship between the variables of corporate governance and the level of intellectual capital disclosure.

### 3. RESEARCH QUESTIONS AND HYPOTHESES DEVELOPMENT

The dependent variable is the level of ICD.

All information regarding the corporate governance variables, which constitute the dependent variables, were collected from the reading of the Corporate Governance Report, available on the website of each company and, where not available, on the Borsa Italiana website.

#### 3.1. Ownership concentration

Agency theory and asymmetric information have been used to explain how the ownership concentration of the company may have a negative effect on intellectual capital disclosure.

In order to minimize agency costs that occur as a result of these conflicts of interest between the principal and agents, shareholders monitor managers requiring more information (Cerbioni and Parbonetti, 2007).

Fama and Jensen (1983) argued that if the ownership is widespread, then the prospect of a conflict of interest between principal and agent is greater than companies with high ownership concentration. Companies with a greater dispersion of ownership are likely to have more pressure from shareholders to reduce agency costs and information asymmetry and therefore have greater incentives to provide information on a voluntary basis. Companies that have a higher concentration of ownership have lower information asymmetry, since the dominant shareholders typically have access to the information they need through private meetings. Li *et al.*, (2008) argue that this applies in particular to the disclosure of intellectual capital "because fund managers have access to such information through private channels of communication."

On the one hand are placed studies of White *et al.* (2007), Whiting and Woodcock (2011), Singh and Van der Zahn (2008), who found no relationship between disclosure and the level of ownership concentration.

On the other hand, Oliveira *et al.* (2006), Li *et al.* (2008), García-Meca and Sánchez-Ballesta (2010) found that firms with a low concentration of ownership, or a property with more people, are more likely to provide a disclosure on intellectual capital.

The present work suggests a relationship between the level of disclosure of intellectual capital and the concentration of ownership, and in particular a negative association between the two variables, in the sense that the higher the concentration of ownership will be smaller information provided by the company.

*H1: There is a negative relationship between the level of ownership concentration and the level of intellectual capital disclosure.*

#### 3.2. Size of the Board

With reference to the size of the Board, John and Senbet (1998) argued that while the ability to control the Board of Directors increases as the number of board members, this benefit may be offset by the incremental cost of poorer communication and effectiveness decision-making is often associated

with large groups. Thus, a too large Board may actually have a lower ability to monitor and may increase the opportunity by the management to carry out the manipulations. Yermack (1996) found that larger boards are likely to be less effective in monitoring top managers.

There is no dominant theory or empirical evidence to suggest a relationship between the size of the Board of Directors and the level of voluntary disclosure and remains, therefore, an empirical question.

Cheng and Courtenay (2006) in their study showed that there is no relationship between the size of the Board and the level of voluntary disclosure.

Cerbioni and Parbonetti (2007), however, on a sample consisting of biotechnology companies listed on the European market in 2003-2004, contrary to their expectations, found that the size of the board has a positive effect on voluntary disclosure of intellectual capital.

Empirical studies showed that in general you can expect that the size of the board is associated with a lower effective control of the board, based on the fact that larger boards are less effective and more susceptible to the influence of the CEO.

Therefore, in relation to this variable, the present research supports the following hypothesis:

*H2: There is a positive relationship between the size of the Board and the level of intellectual capital disclosure.*

### 3.3. Composition of the Board

Another important factor is the composition of the board, which, in this study, and based on the study conducted by Cerbioni and Parbonetti (2007), considered to be the proportion of independent directors.

A central role in corporate governance is carried out by the Board of Directors, which has the task to monitor, control and evaluate the behavior of management (Fama and Jensen, 1983). The members of the Board must be careful and be cautious and avoid conflicts of interest in making decisions in the best interests of the company and the shareholders. The structure of the Board varies considerably from company to company and from country to country (Stone et al., 2008).

In general, recent empirical studies document that firms with weaker governance structures have greater agency problems than companies that have more agency problems have worse results, that companies that have dominated Board of independent directors make a better job of monitoring and management protect the best interests of the property with respect to boards controlled by internal directors (Hermalin and Weisbach, 2003).

In addition, the empirical literature on the composition of the board shows that there is a positive relationship between firm value and the quality of corporate governance measured, for example, the fraction of independent directors in the Board of Directors.

John and Senbet (1998) argue that the effectiveness of the Board in carrying out the monitoring, management control is determined by its composition, independence and size. The

composition and independence are closely linked, since the independence of the board increases with the proportion of independent directors.

Fama (1980) considers the independent directors as referees, whose main objective is to ensure that the board, in monitoring the decisions taken by managers, protecting the interests of shareholders. The executive directors, internal are probably more aligned to the interests of the CEO and may tend to form a coalition with the CEO at the expense of the interests of shareholders (Conyon and He, 2004). According to Fama and Jensen (1983), the presence of a greater number of independent directors (defined as administrators not involved in direct transactions with the company), it is crucial to ensure the separation between the decisions of the management and control decisions, making this way the most effective control. Fama and Jensen (1983) argue that a board composed of a greater proportion of independent directors than executive directors are encouraged to exercise more control to maintain their reputational capital, which is affected in their capacity to perform the tasks of control.

In previous studies, the percentage of independent directors is positively correlated with the level of disclosure (Cerbioni and Parbonetti, 2007; Garcia-Meca and Sanchez-Ballesta, 2010). White et al. (2007) argue that a greater presence of independent directors on the Board of Directors plays a supervisor of "watchdog" more effective with regard to non-financial information presented in the annual financial statements.

According to Patelli and Prencipe (2007), the independent directors have an incentive to protect and build their reputation as experts and controllers, hence they plausibly use the disclosure to signal to financial markets that they are performing their duties effectively.

Cheng and Courtenay (2006) examined the relationship between the independence of the Board and the level of voluntary disclosure and found that the Board of Directors with a higher proportion of independent directors are significantly and positively associated with a higher level of disclosure. In addition, their results also indicate that a company with a majority of independent directors (> 50%) has a higher level of voluntary disclosure, than companies that do not have a board of directors with a majority of independent directors.

On the other hand, other researches, including Ho and Wong (2001), Haniffa and Cooke (2002) and Brammer and Pavelin (2006), find no significant relationship.

Since the results from various studies show mainly that there is a significant and positive relationship between the two variables, this work includes, therefore, this current, supporting the following research hypotheses:

*H3: There is a positive relationship between the number of independent directors and the level of disclosure of intellectual capital.*

### 3.4. Leadership structure: duality

Within the company a central role is played by the Chairman of the Board of Directors and the Managing Director.

The Chairman of the Board of Directors should ensure good governance of the company, activate and coordinate the operation of the Board, establish the agenda for the meetings, ensure that directors receive adequate information in order to contribute to corporate decision-making.

The Director, also known as Chief Executive Officer - CEO - is the one who determines the choice of destination to reach and directs the behavior of management to business performance.

Fama and Jensen (1983) argue that CEO duality ignores the importance of the separation of control decisions and management decisions. The stakeholder theory argues that the duality prevents the orientation of the board members to stakeholders. Separate the position of CEO and Chairman of the Board disperses power and authority and therefore leads to an improvement in the ability of other members of the board to make decisions effectively directed towards the interests of a greater number of stakeholders (Wang and Dewhirst, 1992).

Therefore, on the basis of the results that receives Cerbioni and Parbonetti (2007), according to which there is a negative relationship between CEO duality and voluntary disclosure of intellectual capital, here is formulated the following hypothesis:

*H4: C'è una relazione negativa tra la dualità del CEO e il livello di disclosure del capitale intellettuale.*

### 3.5. Type of auditor

It is assumed that the auditor large and well known firms, the so-called Big Four (PricewaterhouseCoopers, KPMG, Ernst & Young and Deloitte & Touche), encourage companies to provide more information for several reasons: first, because they maintain their reputation (Chalmers and Godfrey, 2004), and second, to ensure the maintenance of customers (Malone *et al.*, 1993).

Many authors have argued that the "controllers" play a crucial role in defining the policy of disclosure of their customers (Raffournier, 1995, p. 256). The maintenance of the reputation is a key factor. It is argued that the largest auditors encourage their clients to provide more information in the annual report (De Angelo, 1981; Hossian *et al.*, 1995). Oliveira *et al.* (2006) have argued that the auditors are better able to encourage their customers to provide more information on intellectual capital, because they want to preserve their reputation and develop their skills in the disclosure on intellectual capital and keep their customers.

Oliveira *et al.* (2006) and Whiting and Woodcock (2011) are the few studies that examine the relationship between the type of firm and the size of the disclosure of intellectual capital. Both studies conclude that companies with an audit firm belongs to the Big Four provide more information on intellectual capital than companies with an audit firm that does not belong to the Big Four.

Consequently, the final hypothesis of this work is:

*H5: companies controlled by an independent auditor belonging to the Big Four provide more information on intellectual capital than companies controlled by an auditing firm that does not belong to the Big Four.*

## 4. RESEARCH METHODOLOGY

### 4.1. Sample

Our sample is retrieved from annual reports of companies listed in the Italian Stock Exchange (FTSE) All-Share Index for the year ending 31 December 2010. Annual reports were used because managers of companies commonly use them to signal what is important. In line with legitimacy theory, the company annual report is viewed as a barometer of the interest taken by management in IC and a san external validation of its commitment to the development of IC in the organisation. In the ICD literature, annual reports have been used to investigate the IC reporting practice of firms (Abeysekera and Guthrie, 2003; Brennan, 2001; Guthrie *et al.*, 2004) and also to investigate the differences in ICD among firms in different countries. We exclude financial companies (i.e. insurance, banks and investments funds) because of the unique characteristics of their financial statements. Corporate (such as board size, auditor type, number of independent member in the Board, duality) and control variables (size of the company, industry) are manually collected from each company's annual report and corporate governance report. Firms with missing data are removed from the analysis. This give us a final sample of 172 firms for the year 2010.

### 4.2. Method

A content analysis was performed on each annual reports. As a technique for gathering data, content analysis involves codifying qualitative and quantitative information into pre-defined categories to derive patterns in the presentation and reporting of information. This methodology seeks to determine the content of written or other published communications by systematic, objective and reliable analysis (Krippendorff, 1980).

The content analysis involved reading the annual reports and recording information related to each variable on a coding sheet. The categories used in the content analysis follow the contemporary classification scheme for intangible involving Sveiby's IC framework (Sveiby, 1997) with three component parts: internal capital, external or relational capital and human capital. A numerical coding scheme was employed for each variable. For each company, a value of zero was used to indicate that the variable did not appear in the annual report; a value of one denoted that the variable was expressed in quantitative or qualitative terms.

If disclosure of the same item was repeated in the annual report it was recorded only once. The recording unit used was the sentences.

According to the list made by Bozzolan *et al.* (2003) and Li *et al.* (2008), we elaborated a list of 38 intellectual capital items (see Table 1) that could be reported by the companies in annual reports. The items were classified in the three different and classical categories of Intellectual Capital: Human capital, Structural Capital and External or Relational Capital.

**Table 1.** Intellectual Capital Checklist

<i>Structural Capital (SC)</i>	<i>Relational Capital (RC)</i>	<i>Human Capital (HC)</i>
Brevetti	Customer relationships	Number of employees
Trademark	Customers	Employee age
Corporate culture	Market leadership	Employee diversity
Management philosophy	Business colabration	Tipology of contract
Networking	Business agreements	Employee relationship
Information system	Distribution channels	Employee work-related competences
Research and Development	Company image	Employee work-related knowledge
Organisation structure	Company awards	Education
Processes	Relationships with stakeholders	Employee training
Quality management	Brand	Skills/Know-how
Financial dealings	Research collaboration	Employee Motivation
Knowledge-based infrastructure	Market presence	
Tecnology	Diffusion	
Innovation	Marketing	

Once clearly defined categories and elements of intellectual capital, the next step was the manual collection of data, in order to construct a disclosure index. It was considered in their entirety the annual report of all companies of the sample. Each individual annual report has been examined in detail with reference to the list of terms of intellectual capital as shown in Table 1. The disclosure index was also calculated in the three categories of intellectual capital.

We have chosen not to use a weighted index based on the type of information given, or based on the nature of the information, whether qualitative or quantitative, financial or non-financial, but to use a dichotomous index, because the purpose of this research is to study not the volume but the influence of the corporate variables on the level of intellectual capital disclosure.

To investigate the possible impact of these variables on the level of disclosure of intellectual capital has been used a linear regression model.

The dependent variables considered in this work are therefore the index for intellectual capital disclosure ( $ICD$ ) and those of the three sub-groups: structural capital ( $ICD_{SC}$ ), relational capital ( $ICD_{RC}$ ) and human capital ( $ICD_{HC}$ ).

Model 1

$$ICD_i = \beta_0 + \beta_1 \ln Size_i + \beta_2 HiTech_i + \beta_3 Lev_i + \beta_4 List_i + \beta_5 Own_i + \beta_6 CdA_i + \beta_7 ID_i + \beta_8 Dual_i + \beta_9 Big4_i + \varepsilon_i$$

Model 2

$$ICD_{SC_i} = \beta_0 + \beta_1 \ln Size_i + \beta_2 HiTech_i + \beta_3 Lev_i + \beta_4 List_i + \beta_5 Own_i + \beta_6 CdA_i + \beta_7 ID_i + \beta_8 Dual_i + \beta_9 Big4_i + \varepsilon_i$$

Model 3

$$ICD_{RC_i} = \beta_0 + \beta_1 \ln Size_i + \beta_2 HiTech_i + \beta_3 Lev_i + \beta_4 List_i + \beta_5 Own_i + \beta_6 CdA_i + \beta_7 ID_i + \beta_8 Dual_i + \beta_9 Big4_i + \varepsilon_i$$

Model 4

$$ICD_{HC_i} = \beta_0 + \beta_1 \ln Size_i + \beta_2 HiTech_i + \beta_3 Lev_i + \beta_4 List_i + \beta_5 Own_i + \beta_6 CdA_i + \beta_7 ID_i + \beta_8 Dual_i + \beta_9 Big4_i + \varepsilon_i$$

Therefore, the level of disclosure constitutes the dependent variable of the four regression functions above, which differ in the choice of the dependent variable which is suitable to express the disclosure of global intellectual capital and refers to the three elements in which is distributed by definition the intellectual capital or structural capital, relational capital and human capital.

$D_{ij}$  is  $j$ -esima information on intellectual capital of the  $i$ -esima company, which takes the value of 1 if it is present or 0 if absent.

$$ICD_{SC_i} = \frac{\sum_{j=1}^{n_{SC}} D_{ij}}{n_{SC}}$$

$$ICD_{RC_i} = \frac{\sum_{j=1}^{n_{RC}} D_{ij}}{n_{RC}}$$

$$ICD_{HC_i} = \frac{\sum_{j=1}^{n_{HC}} D_{ij}}{n_{HC}}$$

$$ICD_i = \frac{\sum_{j=1}^n D_{ij}}{n}$$

At this point we can introduce the linear regression models used:

## 5. FINDINGS

### 5.1. Descriptive statistics

In confirmation of our expectations, Table 2 shows that companies characterized by Presidents who are also CEOs, have a disclosure of structural capital, relational capital, human capital and, in general, intellectual capital, lower, even if only slightly, than companies whose President does not play other roles within the company. However, the

corresponding statistical tests do not confirm a significant difference, namely the indexes of disclosure on intellectual capital not seem to be influenced by the variable duality.

**Table 2.** companies characterized by Presidents who are also CEOs

	Dual	Media	t	p-value
ICD <sub>sc</sub>	0	,4054	0,214	0,831
	1	,3976		
ICD <sub>rc</sub>	0	,3711	0,220	0,826
	1	,3644		
ICD <sub>hc</sub>	0	,3717	1,452	0,149
	1	,3273		
ICD	0	,3847	0,659	0,511

In line with our expectations, Table 3 shows that companies, whose auditors belong to the so-called Big4, have a disclosure of structural capital, relational capital, human capital and, in general, intellectual capital, much higher than companies whose auditors does not belong to the Big4. In particular, the first present a disclosure of intellectual capital by 39.2% compared to 29.3% of the other companies and the same occurs for the individual components of intellectual capital. These differences are, this time, significant for all 4 indices of disclosure even if different levels of significance ( $p < 0.01$ ) for the relational capital and intellectual ( $p < 0.05$ ) with regard to human capital and structural.

**Table 3.** Companies, whose auditors belong to the so-called Big4

	Big4	Media	t	p-value
ICD <sub>sc</sub>	0	,3174	-2,324	0,026
	1	,4161		
ICD <sub>rc</sub>	0	,2730	-3,648	0,001
	1	,3838		
ICD <sub>hc</sub>	0	,2865	-2,345	0,025
	1	,3685		
ICD	0	,2926	-3,154	0,003
	1	,3921		

The table 4 summarizes the overall data refer to the 172 observations of Italian companies, which suggests an average score on the first full disclosure (ICD) of 37.9% and a median value of 35%. With reference to the content of the disclosure, the

**Table 4.** the overall data refer to the 172 observations of Italian companies

	Own	CdA	ID	ICD <sub>sc</sub>	ICD <sub>rc</sub>	ICD <sub>hc</sub>	ICD
Mean	63,3768	9,72	,3884	,4029	,3690	,3575	,3788
Median	66,8915	9,00	,3800	,3950	,3800	,3100	,3500
Dev. std.	15,76940	3,274	,15337	,22038	,18910	,19002	,17156
Min	8,66	4	,00	,00	,00	,01	,05
Max	98,00	21	,89	1,00	,92	,92	,87

**Table 5.** Regression analysis

Model 1ICD	Coefficienti non standardizzati		Coefficienti standardizzati	t	p	VIF
	B	Deviazione standard Errore	Beta			
(Costante)	-,362**	,164		-2,204	,029	
HiTech	,148***	,029	,358	5,162	,000	1,256*
List	,024	,025	,066	,975	,331	1,151*
lnSize	,032***	,008	,316	4,034	,000	1,481
Lev	-,010	,009	-,076	-1,092	,276	1,168
Own	-,001	,001	-,095	-1,385	,168	1,130
Dual	,017	,025	,046	,681	,497	1,131*
CdA	,007*	,004	,133	1,834	,068	1,260
ID	,058	,075	,052	,769	,443	1,083
Big4	,035	,036	,070	,987	,325	1,524*

results show that the level of disclosure relating to structural capital (ICDSC) was higher (40.3%) compared to the disclosure of relational capital (ICDRC) and human capital (ICDHC), respectively 36.9% and 35.8%. These results are in line with what was found from Bozzolan *et al.* (2003), with respect to a sample of Italian listed companies, although much more limited. The lowest percentage obtained by the disclosure of human capital could be explained by the fact that although managers are willing to provide additional and important information to the public, they are aware of the risk that such information may be used by competitors (Bozzolan *et al.*, 2003).

Analyzing the individual categories of information, with reference to the capital structure, the results show that the items most frequently reported are Research & Development, for which 67% of the companies in the sample disclosed the information, and organizational structure where the proportion of disclosure is 64%.

With regard to relational capital, the item that has a higher disclosure is the market (94%), followed by business partnerships (56%), customer relations (49%), customers (48%) and brands (42%).

Finally, with regard to human capital, the items of which companies provide more information are the number of employees (99%), as was obvious to expect, since it is a question mandatory, followed by the variety of employees (56%), relationships with employees (49%) and training (42%).

These data show that Italian firms are characterized by a high concentration of ownership, that the shares are concentrated in the hands of a few shareholders. Regarding the size of the Board of Directors, the average value turns out to be around 10 with an oscillation between 4 and 21. This result is slightly higher than that reported by Cheng and Courtenay (2006), who found that the average size of the Board of Directors of the companies listed on the SGX (Singapore) in 2000 was 8 members with a variation between 4 and 13 members. Finally, with regard to the composition of the Board of Directors, the average proportion of independent directors is about 39%, a percentage similar to that obtained from the 2006 study by Cheng and Courtenay (37%), which means that out of 10 members of the 4 Board of Directors are independent.



From the analysis of the model 1, more specifically by the signs of regression coefficients, can occur as the expected signs between each independent variables and the global index of disclosure are confirmed, except for the variable duality that instead presents an effect positive different from that expected negative. In fact, through the analysis of inferential statistics, are highly significant ( $p < 0.001$ ) only the regression coefficients of the variable industry (HiTech) and size of the company (lnSize). This means that if a company belongs to the high-tech sector, other things being equal variables and control and

corporate governance included in the model, the index for disclosure of intellectual capital increases of 14.8 percentage points compared to a company type traditional. With regard to the variable "size of the company" the effect is positive, that is to say that the greater the total assets of that company the more information provided by the same intellectual capital. Finally, it is to neglect the size of the Board of Directors, which is significant at: for each member that joins the Board of disclosure index global intellectual capital increases by about 0.7 percentage points.

Table 6. Regression analysis

Model 2 ICD <sub>sc</sub>	Coefficienti non standardizzati		Coefficienti standardizzati	t	p	VIF
	B	Deviazione standard Errore	Beta			
(Costante)	-,514**	,207		-2,483	,014	
HiTech	,213***	,036	,403	5,932	,000	1,256 <sup>a</sup>
List	,025	,031	,053	,798	,426	1,151 <sup>a</sup>
lnSize	,042***	,010	,324	4,226	,000	1,481
Lev	-,020*	,011	-,121	-1,769	,079	1,168
Own	-,001	,001	-,106	-1,574	,117	1,130
Dual	,036	,031	,076	1,152	,251	1,131 <sup>a</sup>
CdA	,008	,005	,112	1,587	,114	1,260
ID	,064	,094	,044	,677	,499	1,083
Big4	,013	,045	,021	,298	,766	1,524 <sup>a</sup>

Regarding the signs of regression coefficients, for the second model applies as already said for the model 1, they are all confirmed the signs of the expected relations with the exception of duality, which instead is positive.

Through the analysis of statistical inference, are highly significant ( $p < 0.001$ ), as well as for the model 1, only the regression coefficients of the variable field (HiTech) and company size (lnSize).

Table 7. Regression analysis

Model 3 ICD <sub>ac</sub>	Coefficienti non standardizzati		Coefficienti standardizzati	t	p	VIF
	B	Deviazione standard Errore	Beta			
(Costante)	-,277	,191		-1,453	,148	
HiTech	,143***	,033	,315	4,320	,000	1,256 <sup>a</sup>
List	,050*	,029	,124	1,738	,084	1,151 <sup>a</sup>
lnSize	,028***	,009	,253	3,075	,002	1,481
Lev	-,002	,010	-,012	-,165	,869	1,168
Own	-,001	,001	-,117	-1,628	,105	1,130
Dual	,022	,029	,053	,756	,451	1,131 <sup>a</sup>
CdA	,004	,004	,075	,990	,324	1,260
ID	-,016	,087	-,013	-,181	,857	1,083
Big4	,070*	,042	,125	1,674	,096	1,524 <sup>a</sup>

The analysis of statistical inference, also in this case, shows that they are highly significant ( $p < 0.001$ ) only the regression coefficients of the variable field (HiTech) and company size (lnSize).

The variable Big4, which is significant, that is to say that if the audit firm is part of one of the four large companies internationally renowned, the disclosure index increases by 7 percentage points.

Table 8. Regression analysis

Modello 4 ICD <sub>ur. v. dipendente</sub>	Coefficienti non standardizzati		Coefficienti standardizzati	t	p	VIF
	B	Deviazione standard Errore	Beta			
(Costante)	-,282	,205		-1,374	,171	
HiTech	,071**	,036	,156	1,996	,048	1,256 <sup>a</sup>
List	-,005	,031	-,013	-,177	,860	1,151 <sup>a</sup>
lnSize	,024**	,010	,217	2,463	,015	1,481
Lev	-,006	,011	-,042	-,537	,592	1,168
Own	,000	,001	-,009	-,113	,910	1,130
Dual	-,011	,031	-,028	-,365	,716	1,131 <sup>a</sup>
CdA	,009*	,005	,153	1,873	,063	1,260
ID	,136	,093	,110	1,460	,146	1,083
Big4	,018	,045	,032	,401	,689	1,524 <sup>a</sup>

It is not to neglect the variable Board, which is significant: for each member that joins the Board of Directors the disclosure index of human capital increases by about 1 percentage point.

## 5.2. Concluding remarks

The aim of this study was to analyze the impact of certain variables of corporate governance, such as the size and composition of the board of directors, the duality, the type of auditors and the ownership structure on the level of intellectual capital disclosure (ICD) and on separated components (ICD<sub>CS</sub>, ICD<sub>RC</sub>, ICD<sub>HC</sub>), by the annual reports of Italian non-financial listed companies. Compared to research on intellectual capital disclosure conducted in Italian context (Bozzolan *et al.*, 2003), this study presents some new research, both for the construction of the index for intellectual capital disclosure, and because for the first time have been taken into consideration corporate governance variables.

Regarding the Big4 variable, which is new in the study of corporate governance, not only the expected sign is confirmed, but found to be significant on relational capital disclosure. This is an interesting element, which should be studied better in the future, to see if a different measure of it has any effect on other indices of disclosure developed in this research.

As for the other variables of corporate governance, which, as already mentioned above, are the innovative element of this work compared to national studies carried out on intellectual capital disclosure, it can be concluded that the proportion of independent directors has a positive impact on the disclosure of intellectual capital (as Cerbioni and Parbonetti, 2007, Li *et al.*, 2008), as is expected, even if the values of the variable are not statistically significant. Even the expected signs of the relationship between the size of the board of directors and the level of disclosure of intellectual capital and between the ownership structure and the ICD are confirmed, though the latter variable is not significant.

The variable size of the Board is, however, important and has an impact on both the ICD index and on human capital. Disclosure. Against our expectations, the duality has an inverse relationship with the disclosure of intellectual capital, although not significant. The same result also came Cerbioni and Parbonetti (2007), while Li *et al.* (2010) have rejected the idea of duality, since no influence on intellectual capital disclosure.

Therefore, even if all the expected signs of the variables of corporate governance are confirmed, except in the case of duality, only the variable Big4 and the size of the board of directors have an influence on the disclosure of intellectual capital, even if the impact is not on all indices. Evident, therefore, the innovative aspects achieved by the results of this empirical research, especially with regard to the variables of corporate governance, and in particular the size of the Board and the type of audit firm.

The results obtained on the variables of corporate governance are in line with those reported by Li *et al.* (2008), Hidalgo *et al.* (2010), Abeysekera (2010), Whiting and Woodcock (2011). The outputs

achieved by our empirical research on Big4 show that companies that have an audit firm belongs to the so-called Big4 provide greater disclosure of intellectual capital, as well as showed also Woodcock and Whiting (2011). With regard to the variable size of the Board of Directors, it is an explanatory variable of disclosure of intellectual capital in the sense that the larger the size of the Board and the higher the disclosure (Li *et al.*, 2008; Hidalgo *et al.*, 2010). Finally, with regard to the independence of the board, which is the number of independent, the findings obtained in this study are in line with those obtained in other studies, including, Leuz *et al.* (2003) and García-Meca and Sanchez-Ballesta (2010), who argue that the independence of the Board is related to greater disclosure only in those contexts that are more likely to provide information that is, in those countries where investors institutions have more rights and powers. This could also be a possible explanation of the results obtained from this research.

## 6. LIMITATIONS

At the end of this work, it can be highlighted what are the limits of this research.

Firstly it must be said that the results in which we have arrived certainly suffer a multiplicity of choices made throughout the analysis path, that relate the amplitude of the reference sample, the measurement of the variables, the choice of the year taken into consideration, the type of statistical method used, the unit of analysis selected to carry out the coding of the items. All of these choices can have an impact on the results.

One of the main limitations is the fact that we have taken into account and then studied only the amount of disclosure. We could also examine the quality of disclosure, using, for example, rather than a dichotomous index, a weighted index, by attaching different scores depending on the type, nature of the information provided by the company. In addition, it would be interesting to consider a broader period, studying the trend of disclosure of intellectual capital over the years, for example checking if the economic and financial crisis has had an impact on the level of disclosure.

Finally, a limit and at the same time a new element in the present study compared to the previous work has been to develop four different indices of disclosure. The literature shows that the indices of disclosure can be constructed in various ways, therefore, not always the search results are comparable between them. It would be of interest to be able to use the same method of analysis for disclosure of intellectual capital in order to make a comparison between different countries, comparing the different factors that can affect the disclosure of intellectual capital.

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