HUMAN CAPITAL DISCLOSURE AND MARKET CAPITALIZATION

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Abstract

The voluntary disclosure of the intellectual capital occupies an increasingly important place. Thus, it is important to analyze the structure of the information offered on the intellectual capital to understand its management. The author wants to reveal the growing importance of the human capital in increasing the company's wealth and the impact of the voluntary disclosure on market value. These objectives are completed by the use of quantitative and qualitative methodologies. The results show that the investors have exploited the information that reflects the capacity of knowledge and the experience of the management team to generate future profits.

Keywords: Voluntary Disclosure, Human Capital, Market Capitalization, Structural Equations

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1 Introduction

The company is regarded as a portfolio of resources which is based on necessary and organized knowledge (Mazars and Guerard, 2000). This strategic choice should allow the company to create, operate and maintain intangibles which provide value creation (Tarondeau, 2000). Many attempts have been made to identify the various components of the intangibles (Edvinson and Malone, 1997; Stewart, 1997; Sveiby, 2000; Pierrat, 2000; Belkaoui, 2003; Marois, 2003; Fustec and Marois, 2006). Almost all the definitions agree on the presence of three main characteristics. These assets can be sources of future economic benefits, they have no physical substance and, to some extent, they can be preserved and marketed by a company. They generally include R&D, patents and trademarks. The scope of the intellectual capital has recently evolved from a narrow definition to a broader concept that includes the human capacity, the structural means (databases, technology, culture and habits), the relational capital (networks of customers and suppliers) and the competitive capital which covers the dominant competitive position. These definitions include more dynamic and economic attributes such as the ability to build knowledge, to exploit information, to operate processes, to manage teams and to increase innovative capacity. Widening the scope of the intellectual capital reflects the existent confusion between the intangibles, such as patents, trademarks or software, and the value creation factors.

A key determinant of the innovation and the value creation comes from other components of the intellectual capital as R&D (Rothberg and Erickson, 2002; Watson and al., 2005). Consequently, Lev and Daum (2004), Chen and al. (2005), Wang and Chang (2005) and Johannessen and al. (2005), show that thanks to the following four dimensions of the intellectual capital: human, relational, organizational and competitive, the company can increase its profitability. This result reminds us of early surveys led by Edvinsson and Sullivan (1996), Stewart (1997) and Wang and Chang (2005). They showed that the human capital, which is the heart of the intellectual capital, generates indirectly future profits for the company. More specifically, the knowledge, the skills and the experiences of the employees increase innovation which in turn strengthens the bond with customers and creates sustainable competitive advantages. In fact, according to a research conducted among 4254 companies listed on the Taiwan market during the period from 1992 to 2002, Chen et al. (2005) stated that in order to ensure growth, the company must combine the organizational and the relational components of the intellectual capital. Similarly, the model of value creation proposed by Edvinsson and Sullivan (1996) shows that the human capital sets up the structural capital, which supports the human capital itself. In other words, the skills of the employees determine the quality of the implemented organizational systems as well as the services provided for customers. The structural capital has to include solid and coherent organization systems that provide training seminars for employees and set up strategies for recruitment and employment. Thus, the company responds to the customer expectations. In this context, Lev and Daum (2004) and Johannessen et al. (2005) show that the investment in training can generate value only if it is related to other factors such as the organisation processes and the information systems. These studies reveal that the human capital is the heart of the process of the value creation and that the organizational, the relational and the competitive factors are useless unless they are activated by the human capital.

In Fact, the capacity of the human capital in creating value is well-established a question is worth asking: Does the voluntary disclosure prove the great importance of the human capital in the company's development and competitiveness? To answer this question, the author suggests a more refined conceptualization of the intellectual capital. Also in order to reveal the growing importance of the human capital in increasing the company's wealth and the impact of the voluntary disclosure on market value, he uses quantitative and qualitative methodologies.

The remainder of this paper is structured as follows. Section 2 provides a background about the Intellectual capital and the financial performance. Section 3 presents our research design and discusses the sample selection. Section 4 presents the empirical findings. sFinally, section 5 concludes the paper.

2 Literature Review

The voluntary disclosure of the intellectual capital occupies an increasingly important place. Thus, it is important to analyze the structure of the information offered on the intellectual capital to understand its management.

2.1 The voluntary publication on Intellectual Capital

Managers have the flexibility to add voluntary information to the annual reports which aims at enhancing corporate transparency (Labelle, 2002 ; Bujaki et McConomy, 2002). In addition, the pressure from the investors and the emerging markets have led some groups to voluntarily disclose information and explain their intangible investments. This information completes the financial statements, provides evidence of the ability of firms to create values in the future and gives more credibility to the information summarized in the annual statements (Garcia-Meca, 2005). Highlighting the motivations for voluntary disclosure requires the use of stakeholder theory and legitimacy theory.

According to a stakeholder theory, an organization's management is expected to undertake activities and to report them to the stakeholders. This theory suggests that all stakeholders have the right to be provided with information on how organizational activities influence them (for example, through strategies, management process, etc), even if they cannot directly play a constructive role in the survival of the organization (Deegan et Brown, 1998). Stakeholder theory highlights organizational accountability beyond simple economic or financial performance. It suggests that the organizations will be elected to voluntarily disclose information about their intellectual, social, and environmental performance in order to meet real or perceived stakeholder expectations. Stakeholder theory has an ethical (moral) branch and a positive (managerial) branch. The ethical branch argues that all stakeholders have the right to be treated fairly by the organization, and that the managers should manage the organization for the benefit of all stakeholders (Deegan et Brown, 1998).

The positive branch argues that a stakeholder’s power to influence corporate management should be viewed as a function of the stakeholder’s degree of control over resources required by the organization (Watts and Zimmerman, 1978). The more critical the stakeholder resources are, the greater the expectation that stakeholder demands. Thus, the positive version of stakeholder theory predicts that the management is more likely to focus on the expectations of powerful stakeholders, that is, of those who control resources (Deegan et Brown, 1998). This theory can be tested by using the content analysis method. The annual report is the most efficient way for an organization to communicate with those stakeholder groups deemed to have an interest in controlling certain strategic aspects of an organization. A content analysis of intellectual capital disclosures can be used to determine if this communication is, in fact, taking place. Are companies responding to stakeholder expectations and are they offering a voluntary account of their intellectual capital and the value of their intangible assets? This is a question that has received some attention, but much work is needed to form a conclusive opinion.

Legitimacy theory is closely linked to stakeholder theory. It states that the organizations continually seek to ensure that they operate within the bounds and norms of their respective societies. Legitimacy theory relies on the notion that there is a ‘social contract’ between the company and the society in which it operates. The social contract is a way of describing the multitude of expectations on how an organization should conduct its operations. These societal expectations are changeable. This requires the company to be responsive to the environment in which it operates (Deegan et Brown, 1998). Moon et al. (1994) propose that, if an organization perceives that its legitimacy is in question, it can adopt a number of strategies. Firstly, the organization can inform its ‘relevant publics’ about the (actual) changes in the organization's performance and activities. Secondly, it has to change the perceptions of the relevant publics – without changing its actual behavior. Thirdly, it can manipulate the perceptions of the relevant publics by deflecting attention from the issue of concern to other related issues through an appeal to, for example, emotive symbols. Finally, the organization might seek to change and influence external expectations of its performance.

Many empirical studies of Social and Environmental Reporting have adopted this perspective to explain the voluntary disclosure of intellectual capital by firms. According to legitimacy theory, the organizations must continually appear to be operating in a consistent manner with the societal values (Guthrie et al., 2001). This is often achieved through the medium of company reports. Moon et al. (1994) suggests that organizations may use disclosures to demonstrate management's concerns for societal values, or to divert community attention from the prevailing negative impact of the organizations' activities. A number of prior studies examined voluntary annual report disclosures and viewed the reporting of social and environmental (SEA) information as a method that organizations used to respond to public pressure (Guthrie et al., 2001).

Legitimacy theory is closely tied to the reporting of intellectual capital and to the use of content analysis methods as a measure of such reporting. The companies are more likely to report on their intellectual capital if they have a specific need to do this, that is, when they find themselves unable to legitimize their status on the basis of the hard assets that are traditionally recognized as the symbols of corporate success. Thus, the legitimacy theory, the intellectual capital reporting, and the content analysis are interlinked.

2.2 The analysis of the relationship between publications on capital and the intangible value of the company

Since the 90's, researchers have suggested that there is a great need for information about intangibles. Collins et al. (1997), Williams (2001), Sonnier et al. (2007) and Wang (2008) showed that companies, which are engaged in the intangible investments, are characterized by a strong correlation between market value and output information on their intangibles. Indeed, an increase of 10% of overall score in terms of reporting on intellectual capital has resulted in a reduction of 1.5% of the volatility of share price (Barnet, 2003). Dumay and Tull (2007) showed that the investors are interested in the information that describes the technology systems, organization processes and corporate culture. Relying on 30 Taiwanese firms, Peng et al. (2007) declared the existence of a strong positive relationship between the intellectual capital and the financial performance of the company. Similarly, Abdolmohammadi (2005) described a significant and positive relationship between voluntary disclosure of the intellectual capital and the market capitalization of 58 U.S. firms during 4 years (from 1993 to 1997). Wang and Chang (2008) used the Partial Least Squares (PLS) method to highlight the capacity of the voluntary disclosure of the intellectual capital to minimize the asymmetries of information and remove some uncertainties. Recently, Berzkalne et al. (2013) stated that there is a statistically significant and positive relationship between intellectual capital and company value for enterprises in Latvia and Lithuania.

Therefore, we put forward the following hypothesis:

H1: The voluntary disclosure of the intellectual capital has a direct and positive effect on the value of the company.

Although the investors are dissatisfied with the voluntary disclosure since it loses its effectiveness, recent studies have focused on the quality and the nature of voluntary disclosure to distinguish between companies in the financial market. They showed that the voluntary disclosure on the specific intangibles is regarded as indexes to the value creation. The studies of Healy and Palepu (2001) emphasized that the growing amount of the voluntary disclosure do not meet the investors' basic needs. Similarly, Decarolis and Deeds (1999), Wilbon (1999) and Deeds et al. (1997) found out that the efforts of the technology and the human skills aimed at differentiating between good and bad companies. Wang et al. (2014) stated that the knowledge sharing significantly was found to contribute to all three components of IC, namely human, structural and relational capital, while explicit knowledge sharing only has a significant influence on human and structural capital. Human, structural and relational capital, enhance both operational and financial performance of firms.

The Nesta's and Saviotti's study (2006) on the biotechnology sector indicated that the linkages, which bring the technologies together, have become one of the increasingly important determinants of the company's market value. Even if the existence of the intangibles is important, the way the companies combined them is of a great value for the shareholders. The JASDAQ (Japan Association of Securities Dealers Automated Quotation) has launched a self-assessment that enables companies to measure and disclose their intangibles by using a questionnaire of 120 questions including eight categories (customer, brand, network, processes, and practices in organizing, managing employees). Through this experience, the JASDAQ has improved the disclosure of information about the intellectual capital (OECD, 2006). A series of models have recently been suggested to encourage companies to report about their intangibles. The first wave was characterized by the attempt to correlate the intellectual capital with the innovation and the process of value creation, such as the Value Chain Scoreboard. The second wave focused on a more descriptive statement of the intellectual capital. The third wave of communication models revolved around the "scorecard" that allows companies to provide a greater variety of information related to various components of their intellectual capital. Among these models, the most famous are Skandia Navigator, Balanced Scorecard and Intangible Assets Monitor.

Recently, Kharal et al. (2014) emphasized that oil and gas sector is one of the premier sectors of Pakistani stock market which is characterized by high performance. But pressure on all segments of Pakistani market is mounting and the need of efficient utilization of the resources has become more prominent in the recent era of technological innovations where intangible and intellectual assets have become more important than traditional physical assets. Human capital could be the driving force of performance in the sector under study and performance of this sector could add value to the whole economy of Pakistan.

Thus, thanks to the capacity of the human capital to indirectly generate wealth and the constant improvement of voluntary disclosure of the intellectual capital, we pose the following hypothesis:

H2: The voluntary disclosure, describing the capacity of the human capital to generate value, has a positive and indirect effect on the value of the company.

3 Research Methodology

3.1 Conceptualization of the intellectual capital: A qualitative approach

The research of a deepened typology of the intellectual capital reminds us of the method of the content analysis. This method is one the most adapted to explore the voluntary disclosure (Bozzolan et al., 2006; Abdolmohammadi, 2005; Williams, 2001). Bardin (1977) defined the content analysis like a methodological, systematic and objective exam, of the textual or visual documents which aims to get indicators. This method consists in analyzing ideas given by the author of the communication. It is about taking out again the main treated themes and classify them homogeneous categories. In this context, the method of the content analysis can be adapted to our problematic. It enables us to identify a list of items on intellectual capital.

The groups kept for the qualitative analysis are from different geographical origins. This choice permits us to avoid effects of interrelationship, to get results passing the specificities of every country and to widen the reflection on the voluntary disclosure on the intellectual capital in countries that don't have the same cultures of financial information (Wlliams, 2001; Bessieux-Ollier, 2002; Abdolmohammadi, 2005; Johanson et al., 2005; Garcia-Meca and Martinez, 2007).

Table 1. Characteristics of groups kept for the content analysis

Groups	Activity	Country	sales (M$)
Royal Ahold	Distribution	Holland	41,804
Altria	Food	United States	89,610
Amerisource Bergen	Pharmacy	United States	48,870
BASF	Energy	Germany	50,817
BMW	Transportation	Germany	55,148
France Telecom	Telecommunication	France	58,658
Sony	Electronic	Japon	35,662

In this research the author will analyze the annual reports published on the sites web of selected companies. This choice can be explained by several reasons: the pre-eminence of the annual report as a source of information of the professional investors, the easiness of access to this document, the multiplicity of the potential users of the annual report and its content integrates some specific themes (Atkinson et al., 1997). Besides, a previous study analyzes the voluntary disclosure on the intellectual capital while taking the annual reports of enterprises as a basis (Williams, 2001; Guthrie, 2001; Escaffre, 2002; Michailesco and Sranon-Boiteau, 2003; Abdolmohammadi, 2005; Abeysekera and Guthrie, 2005; Bozzolan et al., 2006).

The theoretical distinction of four components of the intellectual capital is found within the annual reports. So, three types of information to characterize the human capital should be identified: the competence of the staff, the capacity of the enterprise to attract talented people and the capacity of training these people. These three types of information have been kept by enterprises to communicate on the organizational component: the process capital, the knowledge capital and R&D. The competitive component distinguishes two details: the competitive position and the analysis of risks bound to the competitive environment. The table 2 retails definitions of each of components.

Table 2. Intellectual capital items

Components	Informations	Items
Human	*INFO 1* Competencies of human ressources	Know-how
		Expertise
		Professional qualification
		Experience
		Mind of entreprise
		Mind of innovation
		Mind of adaptation
		Directing
		Gouvernance
		Executive Committee
	INFO 2 Capacity of the enterprise to attract and to maintain talented people	Recruiting annoncement
		Recruiting method
		Recruiting criteria
		Involvement to objectives
		Detailed structure of employees
		Social Balance
	INFO 3 Human ressource training	Language training
		Commercial training
		Professional training
		Training on production technology
		Center training
Relational	*INFO 4* The customer capital	Evolution of sales
		New customer
		Channels of distribution
		Trademarks
		Renewal of purchases
		Client relation service
		Club / cards of faithfulness
		To answer to waiting of customers
		Indices of satisfaction
		Market survey
	INFO 5 The reputation of the company	deontology Charter
		Sponsorship
		Charitable activities
		Advertising slogan
		Target
		Supports of communication
		List of signs of the group
		Valorization in accounting
		Logo of marks
Organisational	*INFO 6* The process capital	Quality
		Environnement
		Post-sales services, Maintenance
		Detail of the production
		Technical investissements of production
		Organization chart
		Partnership, licence
	INFO 7 The knowledge capital	Internal communication
		System of information
		Knowledge management
		Company culture
		Managerial philosophy
		Process of management
		E-commerce
		Network
		Financial relations
	INFO 8 R&D	Laboratory research
		Budget of research
		Patents
		Right of authors
		Strategic project
		Accounting valorization
		New products
Competitive	*INFO 9* Dominant competitive position	Leader
		Competitive position
		Number one
		Competitive advantage
		Distinctive Character
	INFO 10 Analysis of risks bound to the competitive environment	Competitors/ competition
		Competitive environnement
		Competitive disadvantage
		Capacity of competition
		Price control
		Intensify differentiation
		New competitive practices

This qualitative phase permitted to specify four constructed to the intellectual capital. So, a measurement scale can be constructed.

3.2 Construction and approval of measurement scale

Sample Selection:

The selected sample is made up of the multinational companies. This choice was useful for three reasons. First, the multinational companies need to publish a large number of voluntary information to obtain resources at lower costs and respond to requests of more information (Hossain et al. 1994; Hossain and Adamds, 1995; Bessieux Ollier, 2002). The share of intangible investment by multinational enterprises is higher than that of small and medium enterprises (Escaffre, 2002; Belkaoui, 2003; Abdolmohammadi, 2005; Abeyskera and Guthrie, 2005; Castro and Lopez-Saez, 2008). Second, the multinational companies are characterised by its capacity to transfer the approaches of the identification and the management of the intellectual capital. The multinational companies have developed a significant portion of their business abroad. They can employ foreign workers, and seek funds on financial markets. Finally, most studies dealing with the voluntary disclosure on intellectual capital have focused on samples of large companies (Escaffre, 2002; Bessieux-Ollier, 2002; Belkaoui, 2003; Abeyskera and Guthrie, 2005; Abdolmohammadi, 2005; Castro and Lopez-Saez, 2008).

The author chose the top 100 multinationals in turnover for the year 2013. Then, he eliminated firms that were the subject of transfers, mergers and splits. He attempted to obtain annual reports from the websites of these multinationals. Only 71 annual reports will be analysed (see Table 3).

Table 3. Procedure of the sample selection

Characteristics of the sample	Number of enterprises
Multinational companies selected	100
- Exclusion of firms that were the subject of transfers, mergers and splits	19
- Exclusion of companies which annual reports are not available	10
Final sample	71

Our sample is based on diversity. The groups identified belong to various sectors. The companies belonging to traditional sectors (food, distribution, oil, automotive, services, aeronautics, metallurgy) represent 66.15% of the total population while firms belonging to sectors based on knowledge represent 33.85 %. The selection of many industries allowed us to have different categories of intellectual capital and avoid correlation effects to a particular sector (García-Meca and Martínez, 2007; Abdolmohammadi, 2005; Bessieux, 2002; Wlliams, 2001, Johanson et al., 2001). Our choice is similar to researchers who have studied the intellectual capital reporting (Garcia-Meca, 2005; Abeyskera and Guthrie, 2005; Escaffre, 2002; Bessieux - Ollier, 2002).

The multinationals are selected from different nationalities to obtain results beyond the specific regulations of each country. Therefore, our study enlarges the knowledge of the voluntary disclosure on the intellectual capital which are taken from different cultures (Escaffre, 2002; Bessieux-Ollier, 2002). However, this diversity does not lead to subjectivity because we analyze voluntary information beyond the legal requirements of financial disclosures on intellectual capital. The study can take into account the practices of 30 European companies (42.25%), 30 American companies (42.25%) and 11 Asian companies (15.5%).

Data collection:

The information published in the annual reports called the method of content analysis (Bozzolan et al., 2006; Abdolmohammadi, 2005; Williams, 2001). This method is about: defining the items that guide research and calculate their frequencies. So, it is the amount of information that is most representative. In this case the author has to choose the evaluation unit of the annual report. Thus, the content analysis involves the detection and enumeration of items in annual reports. This technique is often used in finance. It has been used to respect the principle of objectivity to permit reproduction of the analysis regardless of the person who conducts (Milne and Adler, 1999).

Practically, a grid has been designed to perform an analysis of each annual report. This grid includes the items identified in Table 2. To ensure a level of objectivity, an approach of coding data should be initiated. Indeed, this method of coding allows to classify the population into homogeneous classes in which each word has the same value. The variables are numerically identified by 0 and 1. Zero is a lack of word which defines the item of intellectual capital and 1 is the presence of a word corresponding to the item of intangibles. It is therefore to make a count of words contained in the annual reports of selected companies. When words or expressions appear many times in the same report, these apparitions are aggregated to each other.

Therefore, the difficulty of content analysis reveals why previous studies worked on small sample size (Moscarola, 2002; Abdolmohammadi, 2005). For example, Williams (2001) analyzed 40 annual reports and Bozzolan et al. (2006) worked on a sample of 60 companies. Furthermore, Castro and Lopez-Saez (2008) set up their content analysis of 49 Spanish companies. Also, the studies of Abeysekera and Guthrie (2005), Abdolmohammadi (2005), are respectively based on 30 and 43 companies. Thus, the sample size of this research appears acceptable.

Factor analysis:

The method of factor analysis is highly appropriate to refine the variables. Based on the qualitative approach outlined above, our data consist of 72 variables applicable to the annual reports of 71 multinational companies. So, a total of (72 x 71) 5112 observations are recorded. Empirically, it is easier to summarize this information by replacing the original variables by a smaller number of variables called factors. In order to achieve data processing, it is necessary to ask about the relevance of the choice of factor analysis. Two tests are available for this purpose: the KMO and Bartlett tests have been performed to ensure that the data are gathered in terms of factors. Based on Table 4 we can say that the tests confirm the possibility of applying factor analysis.

Table 4. KMO and Bartlett tests

Constructs	KMO	Barlett test		
		χ^2	Ddl	Sig
Human capital	0.803	610.204	91	0
Relational capital	0.670	249.902	136	0
Organisational capital	0.697	595.955	171	0
Competitive capital	0.691	70.654	21	0

Table 5. Results of the factor analysis

Constructs	Items	Factor 1	Factor 2	Factor 3	Factor 4
HUMAN CAPITAL	Products training	0.900			
	Training in production technologies	0.841			
	Training center	0.636			
	Recruitment annoncement		0.939		
	Recruitment criteria		0.893		
	Detailed structure of employees		0.774		
	Mind of innovation			0.715	
	Profesional qualification			0.673	
	Cronbach's Alpha	***0.6919***	***0.6040***	***0.4722***	
	% Recovered inertia	***26.975***	***22.392***	***13.473***	
RELATIONAL CAPITAL	Renewal of purchases	0.815			
	Charitable activities	0.787			
	New customers	0.575			
	To answer to waiting of customers		0.778		
	Valorisation of mark		0.651		
	Evolution of sales		0.604		
	Club / cards of faithfulness			0.796	
	Logo of marks			0.730	
	Target				0.741
	Channels of distribution				0.553
	Cronbach's Alpha	***0.5387***	***0.3896***	***0.5099***	***0.1735***
	% Recovered inertia	***13.016***	***12.205***	***12.107***	***8.874***
ORGANIZATIONAL CAPITAL	Managerial philosophy	0.801			
	Company culture	0.760			
	Quality control		0.766		
	Environnement		0.719		
	Detail of the production		0.695		
	Knowledge management		0.594		
	Network			0.792	
	Process of management			0.639	
	Cronbach's Alpha	***0.6976***	***0.6272***	***0.49***	
	% Recovered inertia	***14.682***	***14.187***	***12.989***	
COMPETITIVE CAPITAL	Competitive position	0.892			
	Competitors/ competition	0.810			
	Intensify differentiation		0.845		
	Competitive disadvantage		0.793		
	Cronbach's Alpha	***0.27***	***0.5508***		
	% Recovered inertia	***21.768***	***15.801***		

The principal component analysis leads us to simplify the observation data and establish links between variables. According to Evrard et al. (2003), this method allows to find the factors that come from the original variables and interpret them. According to this analysis, we noticed that no component of intellectual capital has left the base. Four factors are kept away to define intellectual capital. Consequently, the final structure of the voluntary disclosure on intellectual capital in terms of latent variables and items is shown below.

Confirmatory analysis, Measurement validation:

The researcher uses the partial least squares (PLS-Graph 3.0, Chin, 1998) approach to estimate a measurement scale of the voluntary disclosure on intellectual capital. Unlike the covariance-based approach to structural equation modeling implemented by, for example, LISREL, PLS path modeling is component based and therefore does not require multivariate normal data, places minimum requirements on measurement levels, and is more suitable for small samples (Chin, 1998; Falk and Miller, 1992; Hulland, 1999). In addition, PLS path modeling is more appropriate for models that contain complex relationships, a large number of manifest variables (>25), both, as our conceptual model does (Chin, 1998).

In this study, the author specifies reflective indicators for all the constructs. To assess the psychometric properties of the measurement instruments, he specify a null model with no structural relationships. The reliability is checked by means of composite scale reliability (CR; Chin, 1998; Fornell and Larcker, 1981) and average variance extracted (AVE) (Chin, 1998; Fornell and Larcker, 1981). For all measures, the CR is well above the cut-off value of .70, and the AVE exceeds the 0.50 cut-off value (Fornell and Larcker, 1981). In addition, we evaluate convergent validity by inspecting the standardized loadings of the measures on their respective constructs (Chin, 1998) and find that all measures exhibit standardized loadings that exceed 0.70 (Hulland, 1999). The CR and AVE calculated on the basis of these loadings still fulfill the necessary requirements with regard to the cut-off values (Table 6).

Table 6. Convergent validity

Constructs	Items	Loadings	T de Student	Composite realiability	AVE
Training capital	Formation aux produits	0.9597	10.3184	0.959	0.921
	Formation aux techniques de production	0.9597	10.3184		
Recruitement capital	Annonce de recrutement	0.9433	20.1336	0.942	0.890
	Critères de recrutement	0.9433	20.1336		
Customer capital	Renouvellement des achats	0.8525	23.9070	0.842	0.727
	Typologie des nouveaux clients	0.8525	23.9070		
Process capital	Philosophie managériale	0.9297	43.6975	0.927	0.864
	Culture de l'entreprise	0.9297	43.6975		
Knowledge capital	Contrôle qualité	0.8493	12.7097	0.825	0.546
	Environnement	0.8099	11.5425		
	Processus de management	0.6112	2.8658		
	Knowledge management	0.6578	3.9460		
Capital risks/ competition	Désavantages concurrentiels	0.8307	12.9490	0.817	0.690
	Intensifier la différentiation	0.8307	12.9490		

The researcher next assesses the discriminant validity of the measures. A construct should share more variance with its measures than it shares with other constructs in the model (Chin, 1998), so the square root of the AVE should exceed the intercorrelations of the construct with the other constructs in the model (Fornell and Larcker 1981). In this study, none of the intercorrelations of the constructs exceed the square root of the AVE of the constructs (Table 7). Consequently, we conclude that all constructs exhibit satisfactory discriminant validity.

Table 7. Discriminant validity

	Training capital	Recruitement capital	Customer capital	Process capital	Knowledge capital	Capital risks/ competition
Training capital	0.959					
Recruitement capital	0.070	0.943				
Customer capital	-0.011	0.018	0.829			
Process capital	0.518	0.104	0.429	0.929		
Knowledge capital	0.480	0.634	0.123	0.416	0.739	
Capital risks/ competition	0.012	0.260	0.427	0.407	0.250	0.758

3.3 Contribution of publications describing the ability of human capital to generate future profits, the assessment undertaken by the financial market

In this section, we try to clarify the relationship between voluntary disclosure on the intellectual capital and firm valuation. Therefore, we have to introduce the variables, the methods of analysis and the data. The sample already used for the construction and the validation of a measurement scale of the voluntary disclosure of the intellectual capital consists of 71 multinational companies.

The hypotheses lead to propose two conceptual models. The first model is to verify the impact of a global score of the voluntary disclosure of the intellectual capital on the investors' perceptions. The second model tests the contribution of publication on each intangible component to evaluate the firm.

The analysis of structural equation of the first model allows us to check the impact of the accounting performance on the market value of the company (the value of T of STUDENT is 2.3162). Contrary to that, the examination of Student's T permits us to conclude that neither the sector which the company belongs to, nor the geographical region, nor the size, nor the debt influence the value of the companies. Furthermore, the results affirm the role played by the voluntary disclosure of the intellectual capital in the evaluation of the company ($T= 2.2772>1.96$). Moreover, the examination of the causal relationships shows that the coefficient associated to the link between the voluntary disclosure of the intellectual capital and corporate value is statistically significant. The information, provided by the company on its intellectual capital and accounting performance, explains 54.5% of its market value. As a result, we can validate the first hypothesis (H1). Findings reaffirm that the gap, which has steadily widened between the market value and book value, shows the increasing irrelevance of financial reporting and encourages companies to improve their non-financial publications on the intellectual capital (Edvinsson and Malone, 1997; Lev and Zarowin, 1999; Sveiby, 2000). This reminds us of the contributions of Collins et al. (1997) and Wang and Chang (2008) who show that the voluntary information provided by the company on its intellectual capital reduces information asymmetries, raising some uncertainties and thus help in evaluating companies in a more precise way.

The relationship between the voluntary disclosure of the intellectual capital and the market value of the company is negative and significant. This finding is contrary to our expectations but may still be explained. In a sample of 31 companies listed on the U.S. market during the period from 1996 to 2000, Williams (2001) shows that the added value estimated by the investors declines immediately after the publication of information on the efforts of innovation and R&D within the company. Such reporting then reveals the competitive advantages of the enterprise and the steps implemented by the company to block the competition. Similarly, Sionnier et al. (2007) show that managers of large companies reduce the content of their annual reports on the intellectual capital to maintain their competitive advantages. In this sense, companies will have no incentive to publish information disclosing their policy of differentiation (Martory, 1998).

The analysis of structural equation (model 2) shows that the international dimension, the size and the accounting performance of a firm are valued by the investors. In addition to this, we conclude that the information published in the annual reports of multinational companies highlight: the importance of knowledge and skills to build technological systems, processes and company’s culture, the capacity of skills, knowledge and experience of the staff to strengthen the relationship with customers (brands, customer service, sales, reputation), the potential of the managerial systems to meet the expectations of customers and attract new ones.

The contribution of Wang and Chang (2005) and Chen et al. (2005) provide a support for our results. According to these authors, the human capital is the basis for the intellectual capital as well as the value creation. They state that the knowledge, the skills and the experiences of the employees improve managerial strategies and make creation to strengthen the relationships with customers. That is to say, the human capital must be combined with other factors such as managerial processes, strategies, laboratory research and development, etc. to generate wealth. Albouy (1999) declares that, according the shareholders, the value creation still need satisfied customers, motivated employees, good quality of products and respect to the regulations set by the government.

Analysis of T of STUDENT allowed the researcher to show that multinationals do not publish in their annual reports information describing their sources of differentiation. This strategy enables the company to maintain its competitive advantages (Martory, 1998).

Table 8. Results of structural equations

	Model 1		Model 2	
Hypotheses	ß	T	ß	*T*
SCORE	-0,349	2,2772*	-	-
humorg	-	-	0,788	8,2081*
humrel	-	-	-0,604	1,762**
orgconc	-	-	-0,156	1,5024
relconc	-	-	0,064	0,3428
Sector	0,107	0,5510	0,035	0,1671
Internationalisation	0,201	1,5623	0,201	1,2555
Geogaphical region	0,090	0,5044	0,152	0,8400
Size	0,298	1,5110	0,298	1,3620
Accounting	0,254	2,3162*	0,297	2,600*
Debt	0,400	1,5766	0,396	1,679**
R^2	0,545		0,648	

Conclusion

The objective of this research is to show the impact of the voluntary disclosure on market value. The empirical verification of this issue requires a definition of the various components of the intellectual capital and a construction of the measurement scale of the voluntary disclosure of the intellectual capital. A qualitative methodology allowed us to propose a final conceptual typology of intellectual capital. The validation methodology of the index is based on factor analyses. These methodological steps identify the structure of the voluntary disclosure on the intellectual capital in four parts: the human capital (training capital, recruitment capital), the organizational capital (process capital, knowledge capital), the relational capital and the competitive capital.

Finally, we proved that the publication provided by the company on its intellectual capital seems to reduce the information asymmetries and the uncertainty about the firm value. Also, we showed that investors exploit the information that reflects the capacity of knowledge and experience of the management team to generate future profits. Thus, the information on knowledge, skills and experiences of employees will be valued by investors if they improve the managerial strategies and drive innovation, which in turn strengthens the relationships with customers. The companies adopt communication strategies that have a financial impact on the content of the annual reports. The leaders of large companies seem to reduce the content of annual reports on intellectual capital to maintain their competitive advantages.

Our results enrich the definitions of the intellectual capital and help investors to evaluate companies and their future opportunities.

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