Intellectual capital as a consequence of financial communities

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Abstract

The majority of previous studies about communities of practice have been about the internal components (e.g. autonomy, formalization, supervisory support, flexibility, skill and development), but not about the relative influence of financial communities (e.g., financial participation's in other companies, export, and import activities). The aims of this research are: 1) this work presents a theoretical argument of the literature with respect to those dimensions which are related to the efficiency of financial communities of practice and intellectual capital; 2) some criterions are established for evaluating or measuring the efficiency of financial communities of practice in the intellectual capital; 3) the relative importance and significance of financial communities of practice will be measured in the intellectual capital; and 4), in conclusion some aspects which can be used to design financial communities of practice more effectively will be shown.

Keywords: Financial communities, Intellectual, human, and organizational capital.

Introduction

The 'market value' of an organization is the result of adding tangible assets and intangible assets (Edvinsson and Malone, 1997). The intellectual capital is used to name the joining of assets which are not recorded anywhere in a company's financial statements and they are very important because generate or will generate value to the organization in the future (Bueno, 1998). One of the most important intellectual capital sources is knowledge. Its origin is the information, the context must be added to information to produce meaning, and when learning occurs over time and across levels (i.e. individual, group and organizational knowledge), it is translated to knowledge. 'Knowledge management' is dynamic process in order to create intellectual capital. Crossan *et al.* (1999) assert that, in this dynamic process, the 'group learning process' represents the bridge between human and organizational capital, and one of the profitable places to adequately development is a community of practice.

As communities of practice are considered as an important way to produce knowledge, and it is required their adequately management to get intellectual capital, financial communities are considered as one of the most important and profitable form to get these results.

In order to know the impact of 'financial communities of practice' on intellectual capital, the paper is structured into five main sections: the theoretical foundation analyzes communities of practice and knowledge management, financial communities of practice and intellectual capital, and some current approaches in the fields of human capital and organizational capital and identifies relevant elements concerning financial communities. Thereafter the required modification of current approaches and the main elements of the integrated model are discussed. Finally, we describe our conclusion application of the model in 191 companies in the research and development industry of Spain. The paper concludes with a summary, a critical reflection and an outlook on further research opportunities.

Communities of practice and knowledge management

Communities of practice comprise 'groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge an expertise by interacting on an ongoing-basis' (Wenger *et al.*, 2002). Discover new ideas, learn together, create new knowledge, create common practices, and develop a sense of a solidarity and personal responsibility and autonomy. These actions flow from the individual to the organization level. At the same time, what has already been learned feeds back from the organization to individual level, affecting how people act and think.

The value of the communities of practice is not only to discover value in the diverse day-to-day processual exchanges of data, information, know-how and fellowship; develop knowledge, manage knowledge resources and gain both theoretical and practical insights into the process of intellectual capital creation (O'Donnell *et al.*, 2003), but also to help firms adapt to the emerging threats and opportunities of the new

economy in several ways (Wenger *et al.*, 2002). First, create new business opportunities by using expertise and relationships with customers and competitors to convert insights into new products and services. Second, reconstitute expertise that gets lost when firms move to decentralized, cross-functional units, thus helping companies get the best of both worlds –accountability and market presence as well as firm-wide access to knowledge resources. Third, enable companies to compete on talent, and for talent, by providing a professional 'home' for practitioners –a stable context for developing skills and reputation- as well as an intangible but crucial sense of identity and belonging. And fourth, leverage participation in multiorganization 'value webs' by making the most of exchanges of knowledge resources as well as conventional products and services by providing social capital generated through practitioner networks that cross firm boundaries.

So, communities of practice facilitate opportunities for sharing knowledge, focus on a domain of knowledge, share approaches and standards (Wenger *et al.*, 2002), get the 'hot topics' in a community emerge over time and are defined by the opportunities to learn, share and critically evaluate what they discover or what may unexpectedly emerge (O'Donnell *et al.*, 2003). Their own life may not necessarily coincide with that of the employer (Wenger *et al.*, 2002).

Community members need to have a space where people have the freedom to ask for candid advice, share interest and their opinions, try their halfbaked ideas without repercussion and in discussion builds on the values and motivations of their members. They need to be encouraged to be explicit about the value of their community throughout its lifetime. Everything requires to facilitate different levels of participation rather than to force involvement of the different community members, and need for a community coordinator (Wenger *et al.*, 2002).

Some communities of practice meet regularly, others are connected primarily by e-mail networks, and may not have an explicit agenda or not follow the agenda closely.

Inevitably, however, people in communities of practice share their experiences and knowledge in free-flowing, creative ways that foster new approaches to problems (O'Donnell *et al.*, 2003).

Communities of practice are a clear example of new ways of organizing, emphasizing knowledge processes rather than machine production in a economy where knowledge is the primary source of value. They can be the key driver or organizational success, when managed[1] correctly, and may well reframe the boundaries and even the defining characteristics of the firm itself. Their existence in modern organizations is a relatively recent phenomenon, but have a tremendous potential, and are a giant leap forward in creating the elusive learning organization.

Financial Communities of practice and Intellectual Capital

Actually, the stakeholders want information on a range of non-financial, industry specific indicators that will enable them to ascribe economic value to important intangible assets. Although there is consensus on the key value indicators, the markets are dissatisfied with the information they receive in some areas, and many companies admitted that they do not have sufficient data to respond to many of the market's needs.

These difficulties and the need of measuring and knowing intellectual capital value, generate new intra-organizational forms, as a financial communities of practice.

Financial communities of practice are groups of people –stakeholders and company workers from different companies- informally bound together by shared expertise and passion for a joint enterprise, according to Wenger and Snyder (2000).

Through 'financial communities', organizations will secure face-to-face interaction (dialogue and discussion) between stakeholders and workers that constitute the organization simultaneously to share a variety of perspectives surrounding a common

[1] Communities of practice are not directly managed by means of the traditional bureaucratic hierarchy or in traditional control-oriented managerialist manner.

topic. So, their members frequently help each other to solver problems and develop new approaches or tools for their field. This makes it emotionally easier for community members to show their weak spots and learn together in what could be termed the reflexive 'public sphere' of the community.

Therefore, financial communities not only 'create, expand and exchange knowledge' and 'develop individual capabilities', without their heart is the processual know-how that members share, critically evaluate and develop. These characteristics allow to assert than these entities are more than just communities of interest or informal networks, because the last ones serve only to inform and pass on information (Wenger *et al.*, 2002).

So, they have three fundamental elements: a) a *domain* of knowledge, which defines a set of issues; b) a *community* of people who care about this domain, and c) the shared *practice* that they are developing to be effective in their domain (Wenger *et al.*, 2002).

As the intellectual capital creation following a human lifeworld communicative or dialogical type logic within a community of practice, and is produced on the basis of experience and analysis with the help of strategic imagination (Völpel, 2002). Financial communities of practice are the adequately forum to get all benefits, because have all conditions to obtain them, and their results may be considered for possible operational or commercial application (O'Donnell *et al.*, 2003).

Member of financial communities of practice share a largely intangible and tacit lifeworld that only exists in a background lifeworlds, which must be conceived as 'culturally transmitted and linguistically organised stock(s) of interpretative patterns' (O'Donnell *et al.*, 2003). Therefore, it is possible to assert than language, culture, communications, dialogue, idea generation, imaginings and knowledge sharing are all key issues in the communities of practice, intellectual capital, and knowledge management.

Financial communities of practice combine informal elements such as trust and instinct, with the traditional management emphasis on effort, focus and efficiency, because the main actors are stakeholders, and in definitive they are investors, and try leveraging this form of 'capital' into economic or social value.

Bueno (1998) asserts that among all the agents which a company has relationships; the most important are stakeholders, because are all those claimants inside and outside an organization who have a vested interest in decisions faced by the organization (Bogenrieder and Nootebom, 2004), and their direct relation with financial performance and survival in the long term, get assert than the stakeholders are the best source of domain knowledge (Blyth, 1999) and create a rich communities in information and knowledge.

Dogson (1993) suggests that through 'congenital learning', stakeholders incorporate into organizations an important knowledge to accomplish goals and planning activities, and create, maintain and support their culture in the firm (Bogenrieder and Nootebom, 2004).

Therefore, at the individual learning level, stakeholders who are in touch with employees, suppliers, clients, and other stakeholders of different companies will have an information exchange, and by beginning from the onset with a literal utilization of the explicit information of the environment, they will create new knowledge.

Intellectual capital, and financial communities

According to Bueno (1998), **'**intellectual capital**'** is knowledge that can be exploited for some money-making or other useful purpose. The term combines the idea of the intellect or brain-power with the economic concept of capital, the saving of entitled benefits so that they can be invested to produce more goods and services.

There is a lot of debate and dialogue in the literature on the classification of different components of intellectual capital (e.g., Kaplan and Norton, 1992; Roos *et al.*, 1997; Edvinsson, 1996; Sveiby, 1997; Brooking, 1996; Bueno, 1998). Roos and Roos (1997)

assert that there are two general categories of intellectual capital: 1) those intangible assets that belong to organization members (i.e. human capital); and 2), those that belong to organizations (i.e. organizational capital).

According to a revision of relative literature on intellectual capital (e.g., Onge, 1996; Roos *et al.*, 1997; Bueno, 1998; Camisón *et al.*, 2000) there is consensus in identified 'human capital' as the skills, knowledge, talents and capabilities of all individuals associated with an organization. Roos *et al.* (1997), Bueno (1998), Onge (1996), Bontis (1996) identify 'human capital' as the skills, knowledge, talents and capabilities of all individuals associated with an organization. This component represents the people within the organization, the employees, their tacit knowledge, skills, experience and attitude. Human capital per definition represents the most important part of the intellectual capital. It is hard to copy, and thus provides the organization with a competitive advantage (Lynn, 2000; Petty and Guthrie, 2000).

Davenport and Prusak (1998) suggest that this human capital is a product of human reflection and experience, and this is supported by Brown and Duguid (1991) and Weick (1991), who argue that this new stored knowledge only becomes intellectual capital when individuals can apply their own experience and contextual understanding to interpret the details and implications for action. Moreover, trust and the ability of employees to work in an autonomous manner are often cited as being essential for the effectiveness of self-managed teams (Martinez and Cegarra, 2004). This is something, which makes the previous 'satisfaction and motivation' existence indispensable, since an individual will find it difficult to interpret client signs or manifestations if previously employee satisfaction has not been achieved for doing it (Fornell 2000).

Ancona (1987), Pearce and Ravlin (1987), Hackman (2003) suggest that 'satisfaction and motivation' in employees is related to reward systems, and compensation. Krogh (1998) asserts that the higher the level of retribution, the higher the level of collaboration among members of the company, which is a significant factor to create

new knowledge. Guzzo and Shea (1992) consider ‘interdependence of the results’ as recognition and individual remuneration’s by projects accomplished by the team. Some authors, (e.g., Gladstein, 1984; Hackman, 1987; Pearce and Ravlin, 1987; Sundstrom *et al.*, 1990) say that this circumstance is important in the efficiency of the individual, group, and organizational learning, and therefore ‘interdependence of the results’ are good predictors of human capital.

Camisón *el al*. (2000) suggest that, ‘organizational capital’ represents the knowledge systematized and internalized by the organization. According to Narver and Slater (1990), ‘organizational capital’ represents the knowledge learnt and created by groups within organizations. Cegarra and Rodrigo, (2003) suggest that ‘organizational capital’ refers to the tacit and explicit knowledge stored, recodified, and recorded in information systems, operating procedures, white papers, routines, diagnostic systems, rules, mission statements and procedures. Hamel (1991) and Szulanski (1996) assert that the capacity to create ‘organizational capital’ is influenced by capabilities of members of the organization to identify and assimilate related knowledge.

Mowery (1983) suggests that organizations which are able to manage its own investments are better using related knowledge. Under this circumstance, Cohen and Levinthal (1990) suggest that ‘organizational capital’ is created because of the technical change pushed by investments, which fosters individuals using related knowledge to create new knowledge. Rosenberg (1982) asserts that ‘organizational capital’ can be created because of the manufactured efforts of the company, since a company will find it easy to interpret related knowledge with its own manufacturing process. In this sense, Tilton (1971) and Allen (1977) suggest that the higher the level of stock, the higher the effort of a company in looking for related knowledge to sell and place its goods.

Reichheld (1996) asserts that “in some companies, productivity gains never translate into cash-flow, because employees harvest the gains for themselves” (p. 46), in other

words, human capital is not transformed into organizational capital. According to Reichheld (1996), the key to quantifying the cash-flow consequences of human capital is to recognize that “employee retention is not only critical for cost efficiency but and important factor in revenue growth as well, because of its direct link to customer acquisition and retention” (p. 96). Therefore, in normal conditions cash-flow is another consequence of using related knowledge which belongs to different agents correctly (e.g. customers, employees, stakeholders, banks, etc.,).

Organizations have a considerable variety of ways to create ‘human and organizational capital’. The role of the chief knowledge management will be to choose the adequate context in which everyone would be able to interact (i.e. dialogue and discussion) with each other. El Sawy *et al.* (1997) suggest that it is precisely the conflict, which pushes the people to question the existing premises and to feel their experience in a new way. However, this conflict cannot be presented at organizational level as all encompassing. It will not be able to offer face-to-face interaction among all the agents that constitute the organization simultaneously.

Therefore, it will be necessary to create ‘financial communities of practice‘, which are smaller groups as opposed to one big group that would become the entire organization, through which members could share their know-how and experiences. However, there is an aspect in the process of financial communities that can effect negatively on the decision making of the community. Janis (1982) calls it ‘groupthink’ or trends in members of the high cohesion groups to lose their critical potentials.

According to Robbins (1996), the two crucial factors, which explain the emergence of the ‘groupthink’ are the ‘degree of cohesion’ and the ‘conformity level’ of the members. In these circumstances, the desire to maintain a united financial community is more important than the quality of the decisions. Janis (1982) suggests a series of actuation’s to offset the possible negative effects of the ‘groupthink’ these activities are:

1) In the first place, Janis considers, ‘creating sub-groups’ with different leaders that work on the same problem. With regard to Janis´ consideration, Gladstein (1984) suggests that the size of the group needs to be sufficiently large to accomplish the tasks, which they have been entrusted with (e.g. the larger number of stakeholders, the bigger the possibility to create subgroups with different leaders).
2) Gladstein (1984), Goodman *et al.* (1986), and Hackman (1987) suggest that ‘heterogeneity of activities’, also have a positive effect on the group learning of the community. This is justified, because, if the tasks assigned to the team are assorted with other activities, it will facilitate ‘intrusion learning’. Therefore, companies which develop export and import activities can contribute to an increase in heterogeneity, because of the opportunity that individuals have for accomplishing several tasks (i.e. export and import activities), which is motivational because, it allows the team members to develop different skills and it also allows the members to learn from one another (Hackman, 1987).
3) Reichheld (1996), and Day (2000) suggest, that the knowledge about customers is so dispersed that it is impossible for all this knowledge to belong to only one company, because, it can not only be contained within the individuals that form part of the company. Through ’holding shares’ in other companies, employees are able to seek out both the technical and cultural aspects of their new roles and responsibilities. ’Holding shares’ are a set of systems and mechanisms through which information exchange is facilitated and at the same time employees have access to relevant information, on the needs and desires of customers for their interpretations and consequent action (Alfaro, 2000).

The equation model and hypotheses

Rolandi (1986) and Mykytyn *et al.* (1994) assert that the background, skills, training and traits of knowledge of the workers are the key essentials for successful intellectual

capital creation. However, these factors do not emerge spontaneously or in a vacuum. They evolve out of the context and the history of the organization and their impact is conditioned by the subjective perceptions of employees whose experience is ruled by that history. This has resulted in questioning where organizations should begin. What enables human and organizational capital creation?

Hedberg (1981), Senge (1990), Kim (1993), and Nonaka and Takeuchi, (1995) argue that knowledge only becomes intellectual capital when 'individual learning' happens. Narver and Slater (1990) suggest that individuals can learn from the experiences of other agents (e.g. customers, banks, suppliers, competitors, employees, stakeholders, etc.) or using organizational memory. In other words, intellectual capital is created when individuals can apply their own experience and contextual understanding to interpret the knowledge stored in the organizational capital or created with the interaction that takes place among internal and external agents.

However, knowledge that has been institutionalized by an organization is difficult to change. Spender (1998) suggests that organizations cannot change and 'unlearn' and that only individuals can do so. Jelinek (1979) draws attention to the fact that organizations cannot have quasi-individual thought processes, and that only people are capable of learning and 'unlearning' by means of mental activity. Consequently it is through individual 'unlearning' that the members of an organization will allow change to occur and result in improved productivity (Hedberg, 1981).

On the other hand, changes in groups' behavior without a corresponding change in organizational capital are transitional states since they create a tension between organization's beliefs and group's action. This tension can only be resolved by integrating changes in groups and organizations with changes in individuals so individual, and group beliefs and organization actions are in accordance with each other. Hedberg (1981) describes this process, as a series of 'little deaths' at the micro-

level, since old structures and ways of thinking must be removed from the repertoire in order to make room for new structures.

According to Schein (1993), all forms of 'unlearning' and change begin with some failures, which have been generated by aims that do not conform to expectations in individuals or organizations (e.g. falling turnover, rising costs, financial deficit, public criticism, or changes of leadership). These fuel-unfreezing processes in which old ways of thinking and behaving are discarded and new ways can be accommodated are facilitated with multiple interpretations. When an organization is faced with a problem it is said that it enters a situation of chaos, however, because of chaos, tension will increase and everyone will concentrate efforts toward the identification and resolution of the problem in the organization, and this often triggers new learning (Nonaka and Takeuchi, 1995).

Existing literature analyzes the factors that affect the learning process from a multitude of perspectives, since each organization will have its own factors, which will depend on the size of the company, legal form, whether or not it is in the stock market, and character of the sector (Day, 2000). Therefore, financial communities, human capital, and organizational capital can be affected by contingent factors.

In Table 3 we present the results of testing the theoretical model shown in Figure 1 through testing the three hypotheses:

H_1: The higher the level of financial communities of practice, the higher the level of human capital

H_2: The higher the level of financial communities of practice, the lower the level of organizational capital

H_3: Human capital, and organizational capital are influenced by contingent factors

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"take in Figure I"

Methodology

Once the importance of financial communities has been justified this work is going to develop the methodology to test the hypothesis. In this mission, the most important companies of the research and development industry of Spain were considered. In this sense, according to the criterion of the European Union from 1996, the research considered the medium companies with more than forty-nine employees at the end of 2001 and financial participation in other organizations as a population. Under these criterions 191 firms were considered. The information was collected using data from the SABI database (i.e. SABI is a database containing information of over 550.000 Spanish companies and over 67.000 Portuguese companies).

In order to determine the activity sector, only one measure is necessary to show a reference point about the kind of activity developed by the company. For this aim, we checked whether companies were making research projects in following activities: agriculture, industry, information, technology, edition, construction, financial services, energy, and pharmacy. Company activities were checked to indicate, (1) they had this activity or (2) they did not have this activity. According to these results, we found a new variable with a minimum value of one and a maximum value of nine.

Firm size was measured by the number of employees within the company (Corsten, 1987). The stock market participation was measured checking whether companies have or don't have presence in the stock market, and the legal form was classified in four categories: (1) sole proprietorship; (2) workers' co-operative, (3) private limited company, and (4) public limited companies.

Table 1 shows articles used to measure every component (i.e. financial communities, human capital, and organizational capital). These articles to facilitate comparison were transformed into indices (i.e. numbers without dimension) with a minimum value of one and a maximum value of ten. This methodology is based on the model of Roos *et al.* (1997) consistent into transforming a list of data, into numbers without representative

dimension of the intangible assets that serves as a reference on the efficiency of the intangible resources, the mathematical expression which was used is shown below.

$$\hat{O}_i = \frac{X_i x\, 10}{Max(X_1 .... , X_n)}$$

Where:

X_i: Represents a case of the variable,

Max ($X_1 \ldots X_n$): Maximum value for the different cases,

$\hat{O}_i$: Index that serves as a reference.

A total of sixteen indices were used to measure all constructs (e.g. personal costs, employee number, retribution costs, profit per employee ratio, stock value, current assets, turnover, total tangible assets, number of stakeholders and their participation in the companies' capital, participation in other companies and their percentage of participation, countries where participated firms are working, exportation sales, importation purchases and total purchases). The evaluation of psychometric properties in each of the measurement scales used for different constructs is based on methodological suggestions developed by Churchill (1979) and was validated for convergence and discrimination (Anderson and Gerbing 1988; Lehmann *et al.*, 1999).

Results of the confirmatory factor analysis and reliability of the scale are shown in Table 1. The standard coefficient regression between the set of explanatory variables of scales and their corresponding variables of saturation are significant, confirming the existence of three inherent dimensions to measure each of the proposed variables. In all cases the coefficients of reliability exceed the minimal level of 0.6 recommended by Bagozzi and Yi (1988) confirming the reliability of each construct. The standardized parameters (>0.5) indicate that there is convergent validity and that they are significant at the level of reliability of 99%. Discriminate validity is guaranteed between each pair of dimensions because the interval of reliability in their correlations does not include unity (Anderson and Gerbing 1988).

"take in Table I"

The confirmation statistics of the hypothesis have been accomplished using the statistical technique of regression analysis. Within this technique we opted for the hierarchic method, which examines the relationships between the financial communities and the components of Intellectual capital and permits the introduction of the independent variables in different blocks. In order to test the hypotheses and determine the variables that maintain a significant relationship with the financial communities of practice, one factor Anova analysis has been carried out. In order to find out if means of different groups which are integrated into each one of these variables is significant or not, the Bonferroni or Tamhane test was used. Results of the confirmation statistics of hypotheses are shown below.

Results

Table 2 indicates a number of strong correlations among several of the independent variables and the dependent variables. Since a number of the independent variables were also highly correlated to one another, a multi-collinearity analysis was conducted to examine this more closely. The results of this analysis indicated that multi-collinearity was not a significant issue since none of the Variance Inflation Factors for any of the variables exceeded 1.4 (Peterson 1994; Hair *et al.*, 1999). Upon completing this regression diagnostic, regression analysis was then used for hypotheses testing.

"take in Table II"

Four regression models, provided in Table 3, were developed to test our three hypotheses. In Models 1a, 2a, only control variables were regressed on each of the two dependent variables, i.e., human capital, and organizational capital. In models 1b, and 2b we regressed the main effect of financial communities and the control variables on each of the two dependent variables. After entering the proposed main effect of financial communities and control variables into the regression equation a comparison

of the standardized regression coefficients and the change in adjusted R^2 in each of the models were then examined for significance (Hair *et al.*,1999; Stone and Hollenbeck, 1988).

Beginning with 'human capital' (Table 3), Model 1a examines the relationship between human capital and the four control variables. Activity sector, stock market participation, and legal form have a significant relationship with human capital, the first and third are positive and the second is negative, in other words a company that belongs to the stock market develops less 'human capital'. Furthermore, companies that have several owners, and can parcel out profits and management duties (e.g. private limited company, and public limited companies) are associated with higher levels of human capital. Model 1a also shows that companies that develop researching projects in different industries are contributing to an increase of human capital.

Model 1b, which includes the four control variables along with the human capital index, represents significant explanatory improvements over Model 1a (ΔR^2=0.036, p<0.01). This is due to the stock market participation improving its relationship and significance, and the firm size also generating a negative significant relationship. This means that a big company (i.e. an organization with more employees) produces less human capital. In Model 1b, one can see that financial communities are positively related to human capital (β=0.243, p<0.01). Therefore, this analysis supplies full support for H_1, and partial support for H_3.

The same conclusion is reached when analyzing organizational capital (Table 3). The incremental variance explained between Model 2a and Model 2b is significant (ΔR^2=0.020, p<0.5), and financial communities are significantly associated with organizational capital. Control variables show that activity sector has a significant and positive relationship with organizational capital (Model 2a) and this variable and stock market participation has the same kind of relationship in Model 2b, improving with respect to Model 2a. In Model 2b, one can see that financial communities are

negatively related to organizational capital (b=-0.183, p<0.05). Therefore, this analysis supplies full support for H_2, and partial support for H_3.

"take in Table III"

Conclusions

This study has examined three key constituents of financial communities (International stakeholders, export and import activities, and holding shares in other companies) and their effects on the creation of 'human capital' and 'organizational capital'. The study has also investigated how some 'contingent factors' (i.e. size of the company, legal form, participation in the stock market, and character of the sector) contribute to the creation of human capital, and organizational capital.

The results indicate that 'human capital', is unlikely on an individual basis without being fostered by financial communities and therefore require empowerment by stakeholders, export and import activities, and holding shares in other companies. However, once financial communities have created 'new knowledge', which is materialized in the form of experiences and mental models, it is necessary to transform this individual and group knowledge into 'organizational capital', thus the 'knowledge restructuring' starts (Watzlawick *et al.,* 1974). This justify that 'financial communities' have a negative effect on organizational capital.

Consideration should be given to how existing rules, procedures, etc obstruct or facilitate 'human capital', and 'organizational capital' created by financial communities, and how financial communities are encouraged to share their knowledge outside their conventional boundaries by knowledge structures.

The results indicate that some contingency factors affect the existence of human and organizational capital. A high level of different activities enables companies to build intangible capital. Hall (2000) has called such intangible capital "e-capital". Furthermore, the stock market participation is a moderating factor on the relationship

between the financial communities and human and organizational capital in the research and development industry of Spain.

The study is not without limitations, especially, because although the constructs have been defined as precisely as possible by drawing on relevant literature, and validated by practitioners, they can realistically only be thought of as proxies for an underlying latent phenomenon that is itself not fully measurable.

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Table I. Construct summary, confirmatory factor analysis and scale reliability of Intellectual Capital and Financial Communities

Human Capital	**Items**	**Value**	**T-value**	$\lambda_i+2\varepsilon$	**SCR**
Satisfaction and motivation	Total personal costs / number of employees	0.50	6.52	0.66	0.676
Level of retribution	Total retribution cost / number of employees	0.60	7.67	0.76	
Interdependence of the results	Total profit / number of employees	0.82	10.69	0.98	
Organizational Capital	**Items**				
Human capital translate into cash-flow	Stocks value / number of employees	0.60	8.29	0.74	0.663
Effort of a company in looking for related knowledge	Current liabilities / turnover	0.78	11.11	0.92	
Technical change pushed by investments	Total assets / turnover	0.50	6.52	0.66	
Financial Communities	**Items**				
Number of International stakeholders	Total foreign stakeholders x percentage of participation	0.50	6.53	0.66	0.671
Export and import activities	Exportation / total sales + Importation / total purchases	0.63	8.75	0.77	
Holding shares in other companies	Total financial investments in foreign companies x percentage of participation	0.78	11.21	0.92	

Source: Own elaboration

Table II. Correlations Matrix for Research and Development sector

	Human Capital	**Organizacional Capital**	**Financial Communities**	**Activity sector**	**Firm size**	**Stock market quotation**
Organizational Capital	-0.034					
Financial Communities	0.133 [b]	-0.034				
Activity sector	0.261 [a]	0.132 [b]	0.313 [a]			
Firm size (employees)	-0.086	-0.033	0.174 [b]	0.043		
Stock market quotation	-0.104 [c]	0.083	0.587 [a]	0.217 [a]	0.137 [b]	
Legal Form	0.090	0.074	0.019	-0.102 [c]	0.102 [c]	0.086

[a] <0.01; [b] p<0.05; [c] p<0.1

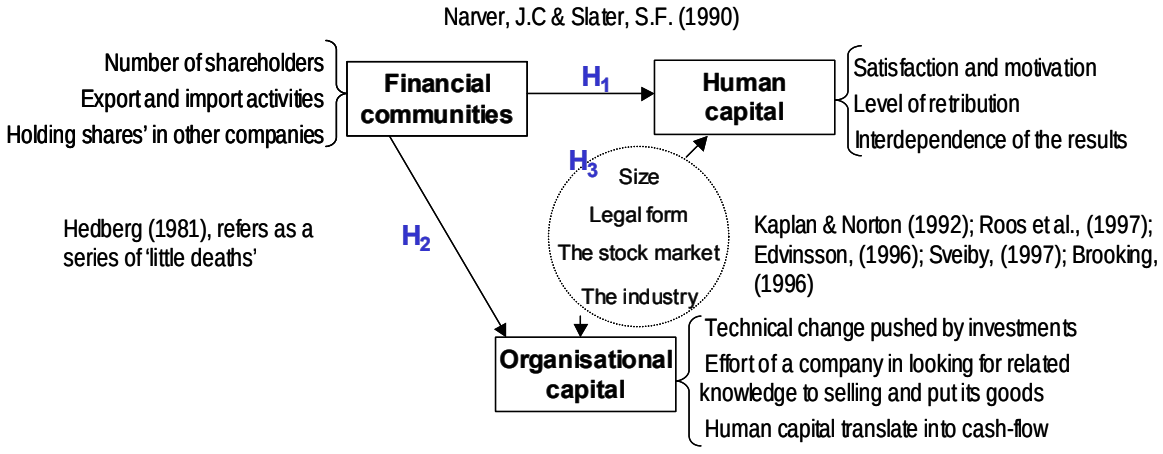
Source: Own elaboration

Table III. Hierarchical regression analysis for Financial Communities

	$H_{1=}$ FC ➔HC		$H_{2=}$ FC ➔OC	
Independent Variables	**Mod. 1a** (β)	**Mod. 1b** (β)	**Mod. 2a** (β)	**Mod. 2b** (β)
Control				
Activity sector	0.317 [a]	0.271 [a]	0.130 [c]	0.166 [b]
Firm size (employees)	-0.091	-0.114 [c]	-0.026	-0.007
Stock market quotation	-0.173 [b]	-0.302 [a]	0.052	0.148 [c]
Legal Form	0.147 [b]	0.151 [b]	0.088	0.085
Financial communities				
Financial communities		0.243 [a]		-0.183 [b]
F	6.452 [a]	6.934 [a]	1.434	2.079 [c]
R^2	0.103	0.135	0.007	0.022
ΔR^2		0.036 [a]		0.020 [b]

[a] p <0.01; [b] p<0.05; [c] p<0.1. ΔR^2 is the incremental variance explained between each Model.
Source: Own elaboration

Fig. 1. The Theoretical Model



Source: Own elaboration