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Understanding the Impact of Knowledge Capital on the International Success of Moroccan Firms: *Evidence From The Fishing Industry*

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ABSTRACT

The objective of this paper is to conduct an analytical exercise on the relationship between the knowledge capital and the firm's international success in a context of openness and market globalization. To achieve this, we exploited the results of a survey of a sample of 44 firms operating in the Moroccan fishing industry. The data collected focused on three dimensions of knowledge: competencies, capabilities, and skills. Their PLS method analysis shows that there is no dimension which alone explains the international success of the firms studied. Among the eleven variables used to measure these dimensions, only four are statistically significant: two variables measuring skills (mastery of standards and norms related to foreign markets and mastery of foreign languages), one variable measuring competencies (establishment and enhancement of linkages and alliances with foreign partners), and one variable measuring capability (building and maintaining customer trust).

Key-words: *Internationalization, Knowledge, International success, Moroccan fishing industry*

1. INTRODUCTION

It is commonly accepted that knowledge capital is a crucial factor in triggering the success of a firm's internationalization process. It raises the company's awareness of the opportunities and threats in relation with their international activity. Knowledge capital also allows firms to develop a sustainable competitive advantage in foreign markets. As an intangible asset, knowledge can reduce uncertainty and clarify strategic choices in a complex and changing environment.

Johanson and Vahlne (1977.1990) initiated the incorporation of knowledge in the context of the internationalization of firms. Both scholars analyzed the development process abroad as a sequence of steps during which a firm performs learning in an international environment. By integrating the knowledge derived from such learning experience in foreign markets, firms feed their decision process. Other scholars like Eriksson and al. (2000), Arrègle (1995), Grant (1996), Eriksson and al. (1997.2000), Bollinger and Smith (2001) analyzed with more depth and rigor of the various dimensions of knowledge with respect to internationalization.

However, there is not sufficient reflection about the impact of knowledge as the firm's intangible capital on the commitment and success of Moroccan firms in foreign markets. We have chosen to explore and analyze this issue with a view to contribute to the debate. We will conduct an analytical exercise on the relationship between knowledge capital and the firm's international success in a context of openness and market globalization. In order to achieve

this objective, we will exploit the results a sample of 44 firms operating in the Moroccan fishing industry.

Our paper is organized as follows. The first section provides a brief literature review on the relationship between knowledge capital as an intangible asset and the firm's international success. The second section presents the main characteristics of our field of research, namely the Moroccan fishery industry. The third section introduces the data collection and methodology approach used in the empirical study. The findings of the empirical investigation are also presented and analyzed. Finally, the general conclusion summarizes the results and offers suggestions and implications in terms of managerial policies.

2. THE THEORETICAL RESEARCH FRAMEWORK

The theoretical reflection on the role of knowledge in the explanation of a firm's internationalization was born in the seventies. This reflection was formalized in order to better understand the rationale as well as the means for which a firm chooses to internationalize. The Uppsala school scholars first studied these issues. Then the latter were improved not only by followers of the theory of resources, particularly Penrose, but also by the "born global" research undertaken by scholars such as Oviatt and McDougall (1994), and Zucchella Scabini (2007) and Brennan and Garvey (2009).

2.1. Knowledge in the firm's internationalization process

Although it has never been clearly defined, internationalization knowledge has generated much debate within the management research community. Each scholar or group of scholars seeks to define it based on the general context, the research orientation, and the pursued objectives.

The scholars of the Uppsala model, particularly Johanson and Wiedersheim-Paul (1975), Johanson, and Vahlne (1977) were the first to integrate knowledge into the explanation of a firm's internationalization. These scholars have highlighted two types of knowledge: objective knowledge and experiential knowledge. The first one is considered as a transferrable public good at little or no cost. Its acquisition is a fundamental step for fighting against the uncertainty related to the internationalization process. The second is specific to the firm. It can only be acquired through hands-on experience, and as a result knowledge cannot be transferred. Since it results from the common overseas activities of the firm, the process of its acquisition can be labeled as "learning by doing" (Pedersen and Sharma, 2001). The firm must absolutely perform operations in foreign markets in order to acquire the necessary knowledge. A similarly acquired knowledge is called stock of international experience. Such stock will morph into an experiential knowledge through organizational learning mechanisms (codification, memorizing, dissemination, etc.).

Likewise, Rhee and Cheng (2002) emphasize that the internationalization knowledge is a crucial element of the international development of a firm. They propose a distinction between a market-specific knowledge, relative to the particular characteristics of such market, and broad market knowledge. The first is objective and formalized. Pertaining to the "know-why" component of knowledge, this form is often essential to firms for becoming aware of the opportunities and threats on foreign markets. It can only be acquired through experience in this market (Johanson & Vahlne, 1977). The second concerns the common

characteristics of the international operation in various foreign markets. This type of knowledge can be transferred from one country to another. It relates the similarities regarding the aspects of production processes, marketing methods employed or marketing actions for the different types of consumers (Rhee and Cheng, 2002).

For their part, Eriksson and al. (1997, 2000) distinguish two dimensions of knowledge pertaining to the internationalization of firms:

- Business knowledge : It relates to the operations in foreign markets, clients and competitors
- Institutional knowledge: it includes information about governance structures in specific countries and their rules, regulations, norms and values, culture, and institutional norms on the target markets.

According to these scholars, knowledge is linked to the ability and the resources mobilized by the firm while seeking to engage in the process of internationalization. They highlight the role of knowledge storage by the firm, which represents the capture and representation of this knowledge for future use. The firm must be able to use its background to identify and develop new information (Eriksson and Chetty, 2003). In this regard, the internationalization knowledge is equated with the absorption capacity. It is kept for some time and can provide decision-stimuli and policy responses on some foreign markets.

For Cohen and Levinthal (1989, 1990, and 1994) and Levinthal (1992), organizations with a high absorption capacity generally adopt a proactive internationalization strategy. In this respect, they increase their absorption capacity by giving priority to the search for new opportunities. These scholars speak indifferently about the wealth and the quality of this knowledge to suggest the level, the complementarily, the diversity, the scope, nature, the ease of use (usability), and the relevance of the possessed knowledge. They underline that an organization is likely to absorb more conveniently new information in an area where it owns previously "rich knowledge".

Additionally, these scholars distinguish three interpretations of the concept of knowledge. The first two are related to conceptual knowledge (Theoretical knowledge) and practical knowledge (Know-how or expertise) to which the scholars give more importance because they are essential to international firms (Kanter, 1995). The third interpretation covers critical knowledge which includes technical knowledge linked to a field of activity, that is to say, the know-how; but also knowledge of external sources of relevant information for this field.

Mejri and Umemoto (2010) underline the importance of both types of knowledge in the explanation of the process of internationalization. They distinguish between market knowledge and experiential knowledge. The first refers to the objective or explicit information on foreign markets (the size of the market, competitors, regulations, etc.). As for the second, it includes knowledge networks (Social network and the network of business), Cultural knowledge (Knowledge of the language, habits, standards, laws, behavior ...) and the knowledge of firm ((Knowledge of the existence and use of opportunities).

The model of Mejri and Umemoto explains the role of these two kinds of knowledge at every stage of the process of internationalization. Market knowledge is usually acquired during the pre-internationalization stage. The company still lacks experience. It is intensely used in neophyte step of internationalization where the firms have a very short experience. However,

it is more faintly used in the confirmed stage since the firm has a long experience. The use of experiential knowledge gradually intensifies as the firm reinforces its international commitment.

Saarenketo and al. (2004) divided the knowledge base of the firm into three basic knowledge categories. The first is tacit knowledge. It encompasses innate or acquired competences, expertise, and experience of the firm on the foreign markets. It aims at protecting it against the replication attempts and it increases cumulative learning based internalities, which enable firms to achieve economies of scale and scope either internally or externally. The second concerns codified knowledge (Fully articulated codified information or know that). This type of knowledge is formalized and articulated in such a way that it can be explained in a known language and be stored regardless of its human support. It is considered as a source of positive externalities. The absorptive capacity of the firm is the key factor when acquiring codified information. The last category of knowledge is generic (Generic knowledge). It consists of a combination of the two above-mentioned knowledge categories. In this perspective, the firm is seen as a repository of knowledge able to realize a sustainable competitive advantage in the long-term.

Based on an ontological dimension, Arrègle (1995) distinguishes between two categories of knowledge within an organization: individual or team knowledge (synonymous with resource) and collective or common knowledge. These two types of knowledge characterize the capacity for action, adaptation, and evolution of the organization. The first category consists of the specific expertise to the company, that is to say, a simple network with few components. The second includes all the elements of knowledge shared by all members of the organization, more precisely a set of organizational routines created by a complex network of components (Arrègle 1995). These routines generally implement elements belonging to different functions of the firms and depend on the entire organization for their existence. The underlying idea is that individuals primarily create knowledge; afterwards, the organization provides support to the creation of knowledge (Nonaka and Takeuchi, 1995). “A process of moving from a world of individual knowledge to the collective knowledge (and Pesqueux Ferrary, 2011) usually explains the dynamics of the transformation of tacit knowledge into explicit knowledge. Knowledge will thus help develop and implement a series of central organizational capacity, allowing the company to act more intelligently (Grant, 1996; Hamel and Pralahald, 1990).

Finally, Ahokangas (1998) classify the knowledge of internationalization in three categories: competencies, capabilities, and skills. The first category includes the characteristics that allow to the firm to accomplish its basic functional activities such as production or marketing. The second includes the intangible resources, which allow the dynamic development of the firm’s activities. Assets such as product development capabilities and innovation management support the ability of the firm to learn, adapt, change, and renew itself over time. The third category relates to the firm’s ability to identify ex ante the intrinsic value of resources.

2.2. The Role of Knowledge in the studies of the internationalization process

Knowledge can be considered as an important factor in steering the firm's internationalization process. It is one of the necessary pillars in confronting environmental uncertainties that characterize the internationalization process (Liesch and Knight, 1999). It is also a tool of

decision-making, which informs about the selection of the market, the choice of mode, and rhythm of the internationalization, an issue largely debated by Johanson and his colleagues (Johanson and Vahlne, 1977; Johanson and Wiedersheim-Paul, 1975).

For the Uppsala model advocates, especially Johanson and Vahlne, knowledge is one of the central concepts that explain the decisions of internationalization. Indeed, among other things, the process was built around the knowledge concept. These scholars consider the foreign development process as a sequence of steps in which the firm acquires knowledge of its international environment. They distinguish four successive stages called the establishment chain: *i)* No regular export activities, *ii)* export via independent representatives, *iii)* sales subsidiary, and *iv)* production or manufacturing.

The gradual nature of their model can mainly be attributed both to the lack of the firm's knowledge and the uncertainty associated with the internationalization decision (Andersen, 1993). Internationalization knowledge is needed to reduce uncertainty and risk inherent to international growth. It is acquired steadily and influences the gradual expansion of internationalization. It is gained gradually in order to consolidate the internationalization process. This is a reactive type of attitude, which stipulates that the firm responds to a need in knowledge triggered by a new strategic direction.

Thus, the lack of market knowledge (direct cause of uncertainty) is the major obstacle to internationalization. This resource can be gradually obtained through personal experience (Johanson and Vahlne 1977; Li and al, 2004; Gankema and al, 2000). Such experiential knowledge gives the firm the ability to capture and evaluate business opportunities and thus reduce uncertainty. Consequently, it makes decisions to engage more resources abroad, which affects its current business activities, and eventually increases the firm's involvement on foreign markets.

In this model, the resources mobilized on a foreign market reflect the state of knowledge, including tacit knowledge. Throughout its presence abroad, the firm perceives better both opportunities and threats. Based on its knowledge and experience, it makes a decision to intensify or moderate its international involvement. The higher the quality of knowledge, the greater the resources committed to the market. The process is done incrementally in the context of the differences represented by the psychological distance. In this regard, Nonaka and Takeuchi (1998) estimate that the company should develop an ongoing ability to create knowledge needed to anticipate market opportunities.

Following the incremental nature of internationalization, Casillas and al. (2009) recognize that the source of knowledge on internationalization comes from two sources. The first is related to the manager and their characteristics (education, international experience, managerial ability, personal intention with regard to internationalization, etc.). The second is rooted in the firm itself. It is attained through the combined effect of international and inter-organizational communication actions. Knowledge leads to recognition and identification of growth opportunities linked to the international development of the firm.

In addition, knowledge of the manager occupies an important place in the literature on the issue of internationalization (Autio and al, 2000). These scholars observed that the rapid international growth of firms can be explained by strong international knowledge strength of their managers. For their part, Knight and Liesch (2002) estimate that, because it is difficult

to obtain and reproduce, a manager's international knowledge can provide a competitive advantage for the firm seeking internationalization.

The resources approach, which originates in the work of Penrose (1959), also brings a relevant point of view on the role of knowledge in the firm's internationalization process. In her theory of the firm, Penrose (1959) proposes a theory of growth processes based on the search of knowledge. For her, the knowledge is the main factor explaining the growth and development of organizations.

Penrose (1959) considers the firm as a set of productive, human and material resources conditioning the policy choices that promote its geographic diversification and growth. The resources are not the inputs to the production process, but only the services they provide. Knowledge intervenes at this level since the services are a function of the experience and knowledge accumulated within the firm and which are specific to it (Ingham, 1997). For Penrose, internationalization is a form of innovation, and knowledge is one of its vital sources. According to the author, knowledge becomes productive when it is put into action to define, reconfigure or develop new products. This staging refers to the innovation that is considered a skill. In this vision, firms with a superior knowledge, which are able to coordinate or combine their resources in a different and innovative way, shall possess a distinctive strategic value that is a source of competitive advantage (Penrose, 1959). Indeed, many empirical studies have confirmed and strengthened the decisive influence on international growth of research and development as a competitive advantage (Jones and Coviello Tang 2011).

Based on some elements provided by Penrose that treat the sources of competitive advantage, other scholars of resources theory (Grant, 1991; Roehl, 1987; Itami, 1989, Wenerfelt, 1984; Dierickx and Cool; 1989)) consider that this advantage does not result only from different combinations products / markets in the industry. On the contrary, this advantage is largely attributable to the various organizational resources and to the knowledge of the organization (Nelson and Winter, 1982).

For his part, Spender (1994) supports the idea that competitive advantage is not only explained by individual resources, but by the coordination of resources, which mainly exist in the activity itself and therefore in the firm (rather than its individual members). Knowledge is considered as the most strategic resource of the firm, because it provides a competitive advantage (Grant, 1996; Davenport and al., 1998; Nonaka and Takeuchi, 1995). It is necessary to support the continuity of any competitive advantage while protecting the valuable knowledge held by the organization. The knowledge-protection capability is provided by preventing the transfer and reducing its boundedness (Liebeskind, 1996).

Many rich and diverse arguments were brought and recognized to shed light on the relation between the variables of knowledge and internationalization. The differences between these contributions generally pertain to three aspects. The first one concerns the type of knowledge that is considered in each approach; the second one is linked to the role of knowledge in the internationalization process and the third one refers to the source of this knowledge.

In the approach of Johanson and Vahlne, market knowledge is crucial because it allows guiding and regulating the resources devoted to internationalization. Its main source remains the firm itself, thanks to its experience abroad (Johanson and Wiedersheim Paul, 1975), and its network of relationships (Johanson and Vahlne, 2003). Oviatt and McDougall (1994)

believe that, in addition to market knowledge, the focus must be placed on the role of the intensity of technological knowledge with regard to internationalization. These scholars focused on the concept of entrepreneurial knowledge. More recently, the work of Oviatt and McDougall, Reuber and Fischer (1997) have highlighted the important role of the international experience of the management team as a whole. These scholars explicitly identify the entrepreneur and their professional experience as vital sources of a firm's knowledge resources (McDougall and al., 1994 cited in Prashantham, 2005).

However, the followers of the «born global" approach have challenged the incremental and linear form of the internationalization process advocated by the "Swedish School", as well as the role of knowledge in this type of process (Knight and Cavusgil, 2004; Oviatt and McDougall, 1994; Zucchella and Scabini, 2007). In this respect, the study of Nordman and Melen (2008) on the impact of different types of knowledge on the process of internationalization of Born Globals has made a great contribution. It shows that the Born globals were initially managed by people with high levels of technological knowledge. This suggests that technological knowledge has a positive impact on the premature internationalization of the firms. Their internationalization process is influenced by the targeted niches of market (Bell, 1995). They also tend to follow their domestic and foreign customers. Nordman and Melen also specify that the level of international knowledge of the founders and managers of the Born Globals is linked to the discovery and exploitation of opportunities in foreign markets.

By supporting the reflection on the strong relationship between knowledge and internationalization, Brennan and Garvey's findings (2009) show the different role of perception of knowledge for both Born Globals staged models. Actually, the lack of knowledge does not seem to be an obstacle to the Born Globals internationalization process as in the Uppsala model, but as a lever of accelerated internationalization. These scholars base their conclusion on empirical and theoretical research contributions. They find that in the Uppsala model, internationalized firms perceive knowledge as a barrier in the sense that they must make the effort of learning to acquire knowledge gradually. The process is generally both time and resource consuming. In contrast, Born Globals consider knowledge as a stimulus of international development.

3. BRIEF PRESENTATION OF THE MOROCCAN FISHING INDUSTRY

The fishing industry holds a strategic place in the Moroccan economy. Besides its highly diversified nature and being a source of employment, its production is strongly oriented towards foreign markets.

3.1 A highly diversified industry

In Morocco, The fishing industry consists of 397 firms, mostly SMEs. It includes five types of activities: canned fish, semi-preserved fish, fresh fish, frozen fish, fishmeal and fish oil, and finally the treatment of seaweed. Frozen seafood units alone account for more than 50% of all industrial units operating in the sector.

During the seventies and eighties, this industry was mainly concentrated at the center of Morocco (Safi, Casablanca and Agadir). In the nineties, some spatial reconfiguration of the industrial units was observed. Fishing activity was rolled out in the areas where the raw

material still exists (Southern Morocco). In 2013, around 75% of the fishing industries operated in four major coastal cities: Agadir, Laayoune, Dakhla and Tan Tan. The rest was shared between the the central and the northern zones of Morocco. Thus as "raw materials" underwent a migratory wave so did the industrial infrastructure.

The majority of companies operating in the seafood industry have been created during the 1990s. This period was characterized by a strong recovery of the sector. In addition, the abundance of raw materials had led to the emergence of new firms especially in the branch of frozen seafood and the conditioning of fresh fish

The fish canning industry consists of 47 active units, with an annual processing capacity of approximately 300,000 tons of raw materials per year. In 2013, the production reached 163700 tons, for a turnover of 5.8 billion Dirhams. Approximately 80% of this production is assigned to foreign markets in return for 4.6 billion dirhams in revenues, placing Morocco in the leading world exporters of canned sardines "Sardina pilchardus".

The industry of semi-preserved is focused on curing and treatment of anchovies as well as fishery products marinades. Using a female workforce, this industry consists of 34 operational production units. It provides 6500 direct employment positions, including 1,500 permanent and 5,000 seasonal workers. In 2013, the semi-preserved fish industry generated a turnover of more than 1.4 billion Dirhams for a production of 19,000 tones. Almost all of this production (18,800 tons) is export bound.

The frozen industry includes about 183 units, most of which is concentrated in southern Morocco because of the development of cephalopods and pelagic fisheries. It provides about 7,000 jobs. In 2013, production reached a record level of 258,300 tons against 160,000 tons produced in 2007. This production is highly valued on the market because its contribution to the turnover of the seafood industry is estimated at 40 % (about 6.5 billion Dirhams in 2013). In addition, it is exclusively intended to foreign markets, especially the European Union.

The fresh fish industry includes about 50 conditioning units. It offers about 1,500 permanent jobs and 1,200 seasonal positions. This industry has processed only 21,000 tons of white fish in 2013 against 46,000 in 2007. This can be explained by the scarcity of the resource and the multiplication of biological rest periods. As for turnover, it reached 1.6 billion in 2013 against 2 billion Dirhams in 2007. The Spanish market represents around 75% of this turnover.

Installed in Morocco before independence, the fish flour and fish oil industry has flourished from the eighties onwards. As much as 15 units located essentially in the sardine ports of Agadir, Safi, Tan Tan and Laayoune practice this activity. It employs about 1,000 people and gets its supplies exclusively from sardine fishing. In 2013, the production reached 78,800 tons (62,000 tons of flour and 168,000 tons of oil) for a turnover of about 950 million Dirhams, fully achieved on foreign markets.

Finally, the Agar industry exists for more than 60 years. During this period, it developed a maximum valuation of algae, which is a renewable coastal raw material. This industry has only two firms located in Casablanca and El Jadida. They annually process approximately 8,000 tons of raw materials. In 2013, the transformation has allowed the extraction of about 1100 tons of agar intended fully for export, for a turnover of 240 million Dirhams. This

activity employs, during the three months of harvest, nearly 10,000 people and guarantees permanent employment to around 400 people.

3.2. A highly internationalized industry

The industry of transformation of sea products significantly contributes to the commercial opening of the Moroccan economy. Thus, more than 85% of production is allocated to foreign markets, which represents approximately 50% of food-processing export. Moreover, the share of this industry in total annual exports of Morocco is around 12%.

Between 1990 and 2013, the export volume of fishery products has experienced an average annual growth of 5%. It moved from 171,631 tons in 1990 to 534,688 tons in 2013. In value terms, sales totaled more than 15.7 billion Dirhams in 2013 against 4.3 billion Dirhams in 1990, which corresponds to 5.8 % of average annual growth.

Four stages have marked the sector's activity. The first, which goes from 1990 to 1999, was characterized by a joint exploitation of national fishery resources by Moroccan and European fishing fleets. During this phase, exports grew moderately (an annual average of 4.3% in volume and 3.1% in value). The second stage corresponds to the biennial 2000-2001. It coincided with the expiry of the fisheries agreement with the European Union. Sales have considerably increased, reaching a record of 364,777 tons for a turnover of more than 11 billion Dirhams. This performance corresponds to 13 % of morocco's total exports and 63 % of the food exports. The third stage corresponds to the 2002-2004 period. It coincided with an exports decrease both in volume and in value. This decrease can be explained by the reduction in the production of cephalopods, right after the introduction of the octopus first development plan. The last phase, ranging from 2005 through 2013, experienced a return to a normal uptrend. Species conservation efforts, especially the octopus development plan and the Halieutis Plan begin to bear fruit.

Regarding the structure of exports, fresh and frozen fish rank first with a revenue of 8.20 billion Dirhams in 2013 against 3.15 billion Dirhams in 1999. Even so, the performance of these two products continued to drop. During the study period, the volume of exports recorded an average of only 3.90% growth per year. It has grown from 113,893 tons in 1990 to 279,254 tons in 2003. Moreover, the share of these products in the global export turnover of the seafood products has risen from 72 % in 1990 to 56 % in 2013. In volume, such a share has risen, over the same period, from 66 % to 52 %. This is attributed to the cephalopod fishery development Plan that set a catch ceiling for different segments of the fleet. This Plan also prohibits the construction of new freezing units. At the same time, as of 2001 the biological rest period was extended to eight months a year.

Canned and semi-preserved fish scores second with a revenue of 6.58 billion Dirhams in 2013 against 1.2 billion Dirhams in 1990, thereby corresponding to an annual increase of 7.69%. Their share of total revenue grew from 26.86% in 1990 to 41.90% in 2005, reflecting the low volatility of these industries.

Sardines are the main species processed by the canned fish industry. They occupy about 88% of exports of this branch, but its average yield per ton (about 17,000 Dirhams) is significantly lower than the other species (60,000 dirham per ton for anchovies and 32,000 Dirhams per ton for tuna). The semi-canning industry processes mainly anchovies. In 2013, this species

represented 98% of the raw material processed, allocated exclusively to foreign markets for a recipe of 1.4 billion Dirhams.

The sea by-products (fish flour and oil) are the third components of the fishery export goods. Their export volume grew from 3,350 tons in 1990 to more than 78,800 tons in 2013, which roughly corresponds to 15% annual growth. Meanwhile, the export turnover reached 950 million Dirhams in 2013 against only 7.12 million Dirhams in 1990, with a 23,70% annual growth. This strong increase can mainly be attributed to this industry's young age and an increase in international demand. Nevertheless, in spite of this result, the share of this industry in the export value of seafood remains minor (3.9% in 2007).

As shown in Table 1, fishery products are essentially shipped to the traditional markets, particularly the European Union and Africa. In 2013, these two markets received respectively 45 % and 21 % of the total of exported products. Obviously, these scores find their explanations in geographical (proximity to Europe), historical (Knowledge of market) and institutional considerations (partnership agreements). In value terms, the EU market occupies the first position with 63% of sales, with the African and the Asian markets lingering far behind. This ranking reflects the nature of the products for each type of market. While the EU market receives essentially the highly valued products such as fresh and frozen fish, canned sardine dominates the African and the Asian markets.

Table 1: Moroccan *Fishery Products* Export Destinations

Geographic Zones	2012		2013	
	In weight (Tons)	In value (Thousands of Dhs)	In weight (Tons)	In value (Thousands of Dhs)
European Union	254 180	9 878 689	248 304	10 008 756
Rest of Europe	50 396	534 809	66 277	745 465
Middle East	8 214	268 840	6 202	179 069
Asia	32 593	1 635 806	58 687	1 775 820
America	40 139	821 411	39 023	779 280
Africa	104 476	2 250 266	114 940	2 161 729
Other	581	26 337	12 238	33 401
Total	505 386	15 618 279	546 925	15 840 755

Source: Ministry of Agriculture and Marine Fisheries, La mer en chiffres, 2013

4. THE EMPIRICAL STUDY

In this section, we present the results of a survey of 44 Moroccan firms operating in the Moroccan fishing industry. After a brief explanation of our methodological choices, we will try to show the impact of knowledge capital on the international success of these firms.

4.1 Methodological Approach elucidation

In order to measure the dependent variable, namely the international success, it is possible to use the export turnover or the increase of international involvement (evolution of the number of covered overseas markets). However, in this paper, we preferred to retain the perceptions of business executives regarding their success in foreign markets. The answers are collected using Likert five-point scale that moves from 1, "a strongly negative perception" through 5, "a strongly positive perception".

Inspired by Ahokangas's research (1998), it is possible to identify three knowledge forms: specific competencies (what the firm can do, i.e. the capabilities that are acquired and which could be verified), capabilities (what the company is able to do, i.e. the expertise or the intangible resources), and skills (physical and mental ability to realize any task). The following table summarizes the variables used in order to measure the three types of knowledge.

Table 2: The internationalization knowledge Capital Measurement Variables

Dimensions of knowledge	Variables	Key Descriptions
Specific Competencies	COM1	Establishment and enhancement of linkages and alliances with foreign partners
	COM2	fast and effective adaptation to foreign business environments
	COM3	Developing human competence necessary for *overseas* operations
	COM4	Collection, analysis and use of information on international business
Capabilities	CAP1	Capacity for empathy with foreign cultures
	CAP2	Systematic evaluation of foreign markets
	CAP3	Building and maintaining *customer trust*
	CAP4	Negotiation of mutually acceptable solutions regarding business problems
Skills	SKI1	M*astery of* norms and standards related to foreign markets
	SKI2	M*astery of foreign languages*
	SKI3	Knowledge of foreign cultures

Source: compiled by the author Ahokangas (1998)

We asked the firm's managers in our sample to inform us about frequency with which they resort to different actions that measure knowledge capital. Answers were recorded with a five-point Likert scale ranging from 1 (never) to 5 (always).

In order to highlight the impact of variables representative of the knowledge capital on the international success of Moroccan firms operating in the industry of sea products, we used the PLS method (Partial Least Squares regression). Three reasons justify such choice. First, the sample size (44 firms) is not sufficiently high to guarantee the normality of the data (Chin and al, 2003). This could undermine the use of ordinary least squares (OLS) and parametric tests. The PLS method is meant to correct this deficiency because it is conceived to apply to an even much smaller sample size than the number of explanatory variables. Then some explanatory variables are highly correlated with one another (multi-colinearity), which can make the classic linear regression impractical. The coefficients that emerge might become very unstable when integrating noisy data. Based on covariance criteria, the PLS regression is considered more reliable and robust. Even in the presence of strong correlations between variables, the coefficients remain stable and keep a certain statistical significance. Finally, the PLS method is known to be particularly suitable for the analysis of complex field studies with missing data. It favors the search for optimal predictive relationships rather than the causality. In choosing the best linear combination to predict the dependent variables, the PLS method yields more significant structural coefficients (Sosik and al, 2009. 17).

We briefly recall the history and the principles of the PLS method. The latter was initially proposed and developed by Wold, Albano, Dunn, Esbensen and Hellberg in 1983. It has had a great success in the field of chemistry where data is often consistent with the technical limitations described above. However, its use in the field of management science is still limited despite its strength and its properties suitable in complex research. The works of scholars such as Martens and Naes (1989), Tenenhaus (1997) and Tenenhaus, Gauchi and Menardo (1995) are currently the most relevant references on this method.

The main objective of the PLS regression is to explain one or more target variables Y (variables to predict or dependent variables) from a set of explanatory variables X (descriptors, predictive variables or independent variables). This is particularly the case when the number of independent and / or dependent variables is high or when multi-colinearity is strong. To do so, the descriptors are summarized in a series of mutually orthogonal factors (factorial axes, latent variables, X- scores). Unlike the PCA (principal component analysis), these factors are constructed to explain Y. Similarly, the target variables are summarized in a series of components (Y-scores). The orthogonality constraint does not apply to them. They will be specially useful for interpretation.

During the modeling process, the PLS regression will enable us to build a series of factors that bring the covariance to the maximum level (Sosik and al. 2009). This covariance criteria helps make a compromise between the return of the variability of X and the investigation of the relationship between X and Y. Thus, it is possible to predict the dependent variable (Y) from independent variables (Xi) by a separation between the signal and the noise, that is to say between what is common to the data and what is more specific to the processed data sample.

4.2. Presentation and interpretation of the results

As we might expect, the 44 firms surveyed are highly internationalized. As much as 38 of them, that is to say 86%, were internationalized from the start of their activities. For the remainder 6 firms, they spent an average of only 3.5 years on the national market before turning to foreign markets. Described by Rennie (1993) as "born globals", these firms generally benefit from a strong international demand. Moreover, for 91% of firms interviewed, more than three quarters of their production is consistently sold abroad.

On a related note, the majority of the firm's managers expressed a very positive perception regarding their success in foreign markets. On a scale ranging from 1 to 5, the average score of satisfaction is 4,138. As for the standard deviation that measures the dispersion around this average score, it is 0.708. It indicates a certain homogeneity in our sample.

Table 3 presents the results of the description of the variables used to measure capital knowledge that will serve to explain the international success of the firms surveyed. Reading this table shows high scores. Only one variable, namely CAP4 (negotiation of mutually acceptable solutions regarding business problems) obtained a score below average. A similar result reflects the solid nature of the business relationships between firms operating in the fisheries sector and their foreign clients. Additionally, there is also a strong domination of the third dimension of the knowledge capital. The variables related to this dimension have received more attention from the respondents.

Table 3: Statistical Description of Independent Variables (knowledge capital)

Variables	Observs	Minimum	Maximum	Average	St.deviation
COM1	44	3,000	5,000	4,341	0,645
COM2	44	2,000	5,000	3,773	0,859
COM3	44	3,000	5,000	3,500	0,591
COM4	44	2,000	5,000	3,977	0,821
CAP1	44	1,000	5,000	3,614	1,205
CAP2	44	2,000	5,000	3,864	1,212
CAP3	44	1,000	5,000	4,023	1,000
CAP4	44	1,000	5,000	1,818	0,896
SKI1	44	3,000	5,000	4,295	0,668
SKI2	44	1,000	5,000	4,205	0,978
SKI3	44	2,000	5,000	4,568	0,661

Source: Author calculations

By using the PLS method, we seek to test the impact of 11 exogenous variables measuring knowledge capital on the international success of industrial firms operating in the Moroccan fisheries sector. One component (PLS) was chosen for the construction of the model since it enables the transcription of a large part of the information. Table 4 presents the PLS-regression coefficients. Given the results, it seems that the predictive ability of the model measured by the coefficient of Q^2 Stone-Geisser is very high (74.1%). Furthermore, the only component of the model (t_1) explains 78.6% of the variance of the dependent variable (Y) and 25.7% of the variance of descriptors (independent variables).

Table 4: The PLS Regression Quality

Indices	Comp1
Regression Quality Index (Q^2)	0,741
Explanatory power of the model (R^2Y)	0,786
Explanatory power of the X variables (R^2X)	0,257
Number of principal components	01

Source: Author calculations

Table 5 outlines the correlation and the credence of the explanatory variables in the construction of the only retained component (t_1). The correlation of variables with such component is generally good. Only three variables in eleven, i.e. COM3 (Developing human competence necessary for operations overseas), CAP4 (negotiation of mutually acceptable solutions regarding business problems) and SKI3 (Knowledge of foreign cultures) have low correlation coefficients. Similarly, the observation of variable weight in the construction of the component highlights a certain domination of four variables: COM1 (Establishment and enhancement of linkages and alliances with foreign partners) CAP3 (Building and maintaining customer trust), SKI1 (mastery of norms and standards related to the foreign markets) and SKI2 (Mastery of foreign languages).

Table 5: Correlation and Weight of the Explanatory Variables

Variables	Correlation	w* vectors
COM1	0,713	0,423
COM2	0,335	0,161
COM3	0,039	0,038
COM4	0,248	0,145
CAP1	0,482	0,230
CAP2	0,336	0,127
CAP3	0,744	0,440
CAP4	-0,074	0,038
APT1	0,837	0,564
APT2	0,726	0,437
APT3	-0,106	0,002

Source: Author calculations

Table 6 presents the VIP (Variable Importance for the Projection), that measure the relative importance of each explanatory variable in explaining the international success of the firms. This statistical indicator serves to isolate the explanatory variables that contribute more to the projection model. Following Chong and Jun (2005) recommendations, only variables whose VIPs coefficients are greater than 1 are significantly influential.

After reading table 5, four variables measuring knowledge capital have the highest VIP value (greater than or equal to 1), which means that they statistically explain the international success of the firms operating in the fishing industry. By order of priority, they can be

stated as follows: the mastery of standards and norms related to foreign markets, building and maintaining customer trust, mastery of foreign languages, and finally the establishment and enhancement of linkages and alliances with foreign partners. The other seven variables have very low coefficients, which mean they definitely cannot be used to predict the international success of the firms studied in this research.

Table 6: The relative importance of the knowledge variables in explaining the international success of the firms (VIP)

Variables	VIP	Standard deviation	Lower bound	Upper bound
APT1	1,871	0,170	1,538	2,204
CAP3	1,458	0,185	1,095	1,821
APT2	1,448	0,196	1,065	1,832
COM1	1,404	0,256	0,902	1,905
CAP1	0,763	0,267	0,238	1,287
COM2	0,533	0,317	-0,088	1,154
COM4	0,480	0,350	-0,207	1,166
CAP2	0,422	0,376	-0,315	1,159
CAP4	0,128	0,302	-0,465	0,720
COM3	0,125	0,336	-0,533	0,784
APT3	0,005	0,353	-0,686	0,697

Source: Author calculations

The PLS model parameters are summarized in table 7. The standardized coefficients of the PLS model (the equivalence of beta coefficients of classical regression) indicate the relative weight of each variable calculated from the normalized values (centered and reduced). The bigger the absolute value of a coefficient the higher the contribution such variable in constructing the model.

Table 7: The regression coefficients of the PLS model

Variables	Coefficients	Standardized coefficients	Standard deviation
COM1	0,248	0,226	0,039
COM2	0,071	0,086	0,049
COM3	0,024	0,020	0,055
COM4	0,067	0,077	0,060
CAP1	0,072	0,123	0,040
CAP2	0,040	0,068	0,059
CAP3	0,166	0,235	0,037
CAP4	0,016	0,021	0,058
SKI1	0,319	0,301	0,042
SKI2	0,169	0,233	0,038
SKI3	0,001	0,001	0,060
Intercept	0,573	-----	-----

Source: Author calculations

An examination of the results shows that all the coefficients have the expected sign (positive sign), but only four of them have values significantly different from zero. The coefficients associated with the four variables have registered the highest VIP. As we pointed out earlier, these variables are: *mastery of* norms and standards related to the foreign markets (SKI1), building and maintaining *customer trust* (CAP3), mastery of foreign languages (SKI2), and finally establishment and enhancement of linkages and alliances with foreign partners (COM1).

The analysis of the results provided by the PLS model emphasizes four main points. First, as expected, network membership is the main determinant of the international success of Moroccan firms operating in the fishing industry. These predominantly family firms tend to favor the establishment of social networks at the expense of formal economic ones. Such network usually refers to a set of actions through which the owner-manager develops and maintains contacts with foreign partners for commercial purposes (Chell and Baines, 2000). Networking is crucial for triggering the development and the consolidation of the Moroccan fishery products export. In addition, it plays an important role in the acquisition of external knowledge.

Second, the international success of Moroccan firms operating in the fishing industry is highly dependent on the cognitive skills of the firms, that is to say on its ability to identify ex-ante the intrinsic value of resources (mastery languages and mastery of standards and norms related to foreign markets). This is not surprising given the requirements of foreign markets (traceability, compliance with health and hygiene standards, eco-labeling, etc.) and the specific nature of exporting firms. These are usually composed of the "Born Globals" (firms that internationalize early in their life cycle), mainly oriented towards the Spanish market and displaying a great need for information literacy and logistics procedures.

The low level of correlation between the knowledge of foreign cultures and the international success of the firms might be explained by the peculiarities of the fishery resource itself, which is sold both processed or unprocessed following international standards and overseas orders. There is no requirement to know the culture of the importing country.

Third, the success in foreign markets is clearly related to experiential knowledge, that is to say, the items that can be acquired through field experience. This form of learning not only requires the mobilization of financial resources, but also intangible or immaterial resources (reputation, trust, values, social capital, knowledge, relational proximity, etc.). Although often less visible, these resources are particularly crucial to improving the competitiveness and the performance of exporting firms.

Fourth, contrary to the theoretical predictions, some variables, such as the analysis and use of information on international business and the development of human resources, inherent to foreign operations, have a very low impact on the international success of the firms studied. Yet these organizational qualities remain strategic as they allow firms to carry out effectively their basic functional activities such as production or marketing. Moroccan firms operating in the fishing industry have a relatively weak organizational structure. Therefore, their success in foreign markets can mainly be explained by external variables related to networking and the compliance with hygiene and quality requirement standards of importing countries.

5. CONCLUSION

Throughout this paper, we tried to understand the impact that the concept of "knowledge" may have on the success of the internationalization of Moroccan firms operating in the fishing industry. In order to achieve such objective, we have mobilized a diverse and rich theoretical framework. This allowed us to clarify the meaning that knowledge can take in the field of strategic management and internationalization of firms. It also allowed us to identify and characterize the different forms of international knowledge (objective knowledge, market knowledge, experiential knowledge, knowledge resource, collective knowledge, common knowledge, etc.).

Given the existing theoretical developments, it seems that knowledge capital is generally regarded as one of the main components of the explanatory model of the international involvement and success of firms. Whether approached in terms of the Uppsala model, the resources or the networks model, internationalization is generally seen as a process of learning and accumulation of knowledge. Admittedly, this requires the mobilization of a package of values and resources that directly or indirectly affect the ability of companies to create and mobilize knowledge.

Our empirical study covered 44 industrial firms operating in the Moroccan fisheries sector. The data collected focused on three dimensions of knowledge: competencies, capabilities, and skills. Their PLS method analysis shows that there is no dimension which alone explains the international success of the firms studied. Among the eleven variables used to measure these dimensions, only four are statistically significant: two variables measuring skills (mastery of standards and norms related to foreign markets and mastery of foreign languages), one variable measuring competencies (establishment and enhancement of linkages and alliances with foreign partners), and one variable measuring capability (Building and maintaining customer trust).

However, the main determinant of the international success of the firms studied remains the establishment and enhancement of linkages and alliances with foreign partners. This reflects the importance played by the formal (or informal) network in the acquisition of useful knowledge for the proper functioning of the internationalization process. This also reflects a high level of professionalism of the owner-managers of the firms studied in building alliances and partnerships with foreign operators.

Naturally, this research has a number of limitations. First, the sample size is not large enough to use more robust statistical tools, particularly the structural equations. Then, our model is partial because it includes only one predictor of the degree of internationalization of firms, namely knowledge. This may obscure other potentially important factors, especially the incentives and government aids. Finally, our research field seems quite limited. Indeed, the fisheries sector consists largely of the born globals. It would be interesting to extend the study to other food companies as part of a comparative analysis.

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