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Born globals trough knowledge-based dynamic capabilities and network market orientation

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Abstract This paper studies the influence of network market orientation on Spanish born globals' adaptation, absorption and innovation dynamic capabilities as well as their influence on the performance achieved by these companies. Based on an ambidexterity approach, which points to born globals' need to adopt a double exploration/exploitation function, this study considers these three specific knowledge-based dynamic capabilities analysing their interrelationship taking into account their exploration/exploitation duality. Results from the testing of the structural equation model proposed confirm that network market orientation facilitates the development of dynamic, exploratory capabilities (adaptation and absorption capabilities) in born globals and that these, in turn, influence their capacity to exploit knowledge through innovations, thereby obtaining higher performance.

Introduction

Since the first studies of the internationalisation of the firm were published in the 1960s, the academic interest in this theme has continued to grow. Indeed, Werner (2002) indicates that the percentage of articles on internationalisation published in the twenty most important international business management and marketing journals, according to the *Journal Citation Reports* drawn up by the *Institute of Scientific Information*, had tripled in the last twenty years of the 20th century. This growing research interest finds its justification in the increased international activity of firms, due principally to the phenomenon of globalisation experienced by the markets in this same period (Bartlett and Ghoshal, 2000).

Thus, the new global market conditions provoke changes in the internationalisation conduct of the new firms. This no longer occurs gradually, as maintained by the traditional literature on the internationalisation of the firm

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(Johanson and Vahlne, 1977), but rather quickly after their creation. In this respect, from the mid-1990s onwards we observe growing interest in this subject, leading to the emergence of a new line of study called *international entrepreneurship*. It is based on a multidisciplinary approach reflecting aspects of different theoretical perspectives such as international commerce, *entrepreneurship*, economics, psychology, anthropology, finance, marketing and sociology (Oviatt and McDougall, 2005), and focuses on analysis of the ''discovery, enactment, evaluation and exploitation of opportunities – across national borders – to create future goods and services'' (Oviatt and McDougall, 2005: 540). This typology of firm has generally been known as an *international new venture* (Oviatt and McDougall, 1994) or as *born global* (McKinsey and Co, 1993; Knight and Cavusgil, 1996; Madsen and Servais, 1997).

If we focus specifically on the studies related to the *international entrepreneurship* stream, we note that most of the studies embodying this new line of research have focused on determining, from an *entrepreneurship* perspective, those factors that can influence the exceptional speed with which new firms internationalise and operate simultaneously in multiple countries (Zahra and Garvis, 2000; Westhead et al., 2001; Rialp et al., 2002, 2005; Zahra and George, 2002; Oviatt and McDougall, 2005). However, only a few studies have been concerned to analyse the factors that can help these firms to sustain their activity once past the initial phase of their creation (Zahra and George, 2002; Rialp et al., 2005; Aspelund et al., 2007; Casillas et al., 2009). This lack of study is even more important if we take into account that these firms must face certain disadvantages associated with their foreign and innovative nature (Autio et al., 2000) in their attempt to compete with other firms already established in these foreign markets, together with a highly dynamic and changing environment.

In this respect, various studies have ascribed to market knowledge an important role in the international trajectory of new firms insofar as it constitutes a key variable for the proactive search for international opportunities (Autio et al., 2000; Andersson, 2004; Knight and Cavusgil, 2004; Sapienza et al., 2006; Acedo and Jones, 2007; Gassmann and Keupp, 2007; Weerawardena et al., 2007; Zhou, 2007; Armario et al., 2008; Nordman and Melen, 2008; Perks and Hughes, 2008; Saarenketo et al., 2008; Zahra and Hayton, 2008; Brennan and Garvey, 2009; Casillas et al., 2009; Liao et al., 2010, 2011).Thus, McNaugthon (2003) demonstrates that firms concerned for the knowledge of international markets have a wider perspective of them, and have greater possibilities of being the first to cover the opportunities emerging in them. According to (Javalgi et al., 2006: 15), in the current contexts ''organisations must listen to and correctly interpret the voice of the market''. They must remain alert to the signals coming from the different agents in order to make the right decision at the right time. Any that lose contact with the markets, who ignore or misinterpret their signals, will tend to fail.

However, if we focus on the source of generation of this knowledge we observe that in past literature, especially from process theories, the experience gradually accumulated by the firm in the market is accorded a fundamental role in the generation of knowledge and, consequently, in its process of internationalisation (Johanson and Wiedersheim-Paul, 1975; Lee and Brasch, 1978; Johanson and Vahlne, 1990). However, in the case of born globals (BGs), due to their short life, the experience that the firm itself is able to accumulate prior to its internationalisation will, a priori, be minimal. So experiential knowledge cannot be considered its principal source of knowledge (Burgel and Murray, 2000). It therefore becomes necessary to investigate how BGs acquire, interpret and translate market information in order to develop skills that contribute to their international sustainability (Knight and Liesch, 2002).

We start by analysing the applicability of traditional theories of internationalisation to this new business reality, and propose two factors associated with knowledge as being fundamental in the sustainability of BGs: market orientation of the network to which they belong, and the dynamic capabilities that they individually generate due to the former. Using the ambidextrism approach, our study proposes to examine in depth: (1) the relationship between the two factors, (2) the interrelation existing among the dynamic capabilities themselves considering their different nature, of exploration or exploitation, and (3) in terms of this different nature, the influence of the dynamic capabilities on the international performance achieved by these firms. We thus propose a reference scenario that will make it possible to determine how BGs manage to survive in environments of change and how they manage their continuous adaptation.

To achieve this objective the study is structured as follows. First, we set out the theoretical framework which permits the foundations of the hypotheses of the model to be laid. Next we present the empirical study, analysing the results obtained. Finally we set out the principal conclusions, limitations and future lines of research.

Knowledge in the internationalisation of BGs

The role of network market orientation

The marketing literature maintains that market orientation not only provides the information and the knowledge that firms need in order to carry on their activity successfully in turbulent environments, but also favours the integration of this information into the firm, thus influencing the actions undertaken by the latter (Becherer and Maurer, 1997; Cadogan et al., 2001, 2002, 2003; Cadogan et al., 2006; Bhuian et al., 2005; Luo et al., 2005; Qiu, 2008). Additionally, from the relational approach, the last decade has also highlighted the importance of networks, not only during the process of creation of firms, but also throughout their process of consolidation (Chetty and Blankenburg, 2000; Hite and Hesterly, 2001; Etemad, 2003; Johanson and Vahlne, 2003, 2009; Sharma and Blomstermo, 2003; Coviello, 2006; Gilmore et al., 2006; Loane and Bell, 2006; Zain and Ng, 2006; Kiss and Danis, 2008; Perks and Hughes, 2008; Ojala, 2009). Thus, the bonds developed by the entrepreneur with the members of his network (whether customers, suppliers, distributors, family or other private or public institutions), may be key to gathering a greater quantity and variety of information on the new tendencies and opportunities existing in the market, how to exploit those opportunities, and how to access the resources needed for this purpose (Perks and Hughes, 2008).

In this sense, this study captures the complementarity between the two factors in a single construct called network market orientation. Until now, its study has been limited to consideration of the sum of the market orientations of individual firms (Siguaw et al., 1998; Beverland and Lindgreen, 2007; Chung et al., 2007; Hyvonen and Tuominen, 2007) or to the mere adaptation of the seminal conceptualisations of market orientation (behavioural approach: Elg, 2002, 2005; cultural approach: Evanschitzky, 2007). On the other hand, the study by Helfert et al. (2002), reference of our study, takes a step forward by permitting identification of the basic activities that characterise market orientation in the context of a network. Specifically, the authors define four major activities of relationship management: (1) exchange of knowledge, with the aim of serving customers' needs; (2) coordination, capturing the synchronisation of the relationships among the members though formal rules and informal influences; (3) conflict resolution, referring to extraordinary situations that may occur in long-lasting relationships and thus cannot be resolved with standardised activities; and (4) coupling, in relation to updating of activities and mechanisms of the members of the network in order to better address market demand. This joint effort leads every member of the network to benefit from access to an expanded intellectual capital that includes individual capital, organisational capital, and now also social capital.

The role of dynamic capabilities as facilitators of ambidextrism

According to the resources and capabilities based view, the internationalisation of the firm depends on its possession of certain valuable resources and capabilities that are sustained over time (Grant, 1996; Luo, 2000; Griffith and Harvey, 2001; Li et al., 2004; Armario et al., 2008). This static internal vision has translated in past literature into studies focused on mature firms created in environments more stable than present ones. This circumstance led these firms to focus on the exploitation of the internal knowledge that they possessed, as this led to them obtaining results in the short term (Henderson and Clark, 1990; Levinthal and March, 1993; Benner and Tushman, 2003; March, 2003; Gupta et al., 2006; O'Reilly and Tushman, 2008).

However, the new competitive conditions currently faced by firms, characterised by continuous changes that lead to the shortening of the useful lifecycles of these resources and capabilities (Zhang, 2007; Liao et al., 2010, 2011), make it difficult to maintain this assumption. Indeed, mature firms tend to present inherent rigidities (Leonard-Barton, 1992) that arise as a result of the aggregation of capabilities related to the search for a past opportunity (Dierickx and Cool, 1989), which alter and hinder the firm's development of future entrepreneurial capabilities (Hill and Rothaermel, 2003; Arthurs and Busenitz, 2006). Therefore, in the present context, the fact that a firm's survival is associated with certain capabilities at a specific time, does not guarantee that such capabilities will ensure its survival in the future (Green et al., 2008b).

A clear example of this is to be found in BGs that, unlike the large established firms, do not possess internally incrusted routines that limit their flexibility. In their case, the highly competitive and changing context which they have to face determines that for a BG it is not enough to focus only on the exploitation of knowledge. As pointed out by Rindova and Kotha (2001), these firms must concentrate their efforts on renewing their sources of value, instead of focusing on protecting them. For this reason the further development of capabilities for the exploration of new knowledge will be a fundamental factor in ensuring their survival.

In sum, BGs must invest in the generation and development of certain capabilities that facilitate both beneficial exploitation of the existing resources and positions and, simultaneously, exploration of new technologies and opportunities that emerge in the markets. This is the essence of the approach based on ambidextrism, which advocates a dual function of exploration and exploitation in the firm (March, 1991; Volberda, 1998; Helfat and Raubitschek, 2000; Holmqvist, 2004; Jansen et al., 2006; Teece, 2007; Li et al., 2008; O'Reilly and Tushman, 2008). On the one hand, exploration represents a form of learning that implies the pursuit of a knowledge that does not exist in the organisation in order to enrich the current value, starting with the internal management of this new knowledge by the organisation. Exploitation, on the other hand, implies being capable of transforming the existing knowledge in such a way as to incorporate it into the value created by the organisation for its present customers (Prieto, 2010).

Associated with this idea, we can say that the long term survival of BGs will depend on their continued commitment to building new capabilities or resources, and recombining or reconfiguring existing ones in order to adapt to the new demands of the markets (Teece et al., 1997; Eisenhardt and Martin, 2000; Rindova and Kotha, 2001; Wu, 2007; Zhang, 2007; O'Reilly and Tushman, 2008). That is, on the degree to which they are capable of generating dynamic capabilities. Taking as reference the studies by Wang and Ahmed (2007) and Hou (2008), based on a theoretical review of the dynamic capabilities construct, we identify three knowledge-based dynamic capabilities commonly accepted in the literature: the capabilities of adaptation, absorption and innovation.

The adaptation capability focuses on the identification of opportunities and the ability to be flexible to changes (Ansoff, 1965; Miles and Snow, 1978; Chakravarthy, 1982; Hooley et al., 1999; Wang and Ahmed, 2007). The absorption capability is related to the assimilation of external information into the firm's internal knowledge base (Cohen and Levinthal, 1990; Van den Bosch et al., 1999; Zahra and George, 2002). Finally, the innovation capability captures the ability to transform the knowledge generated by the firm in order to introduce actions directed at the markets in the form of products, mechanisms, processes, etc., that will contribute to its competitiveness in those markets (Schumpeter, 1934; Miller and Friesen, 1983; Kogut and Zander, 1992; Hurley and Hult, 1998; Wang and Ahmed, 2007).

On the basis of these definitions and following Lichtenthaler and Lichtenthaler (2009), who propose a classification of knowledge-based capabilities according to the functions of exploration and exploitation defended under the ambidextrism approach, we observe that the more the capabilities of adaptation and of absorption involve a flow of

information from the market to the firm, the more they will contribute to the exploration of knowledge. On the other hand, the innovation capability, by capturing the transformation of internal knowledge to give it a direct application towards the market, will contribute greatly to its exploitation.

Altogether, we start from a theoretical position based on the generation by BGs of dynamic capabilities. These dynamic capabilities contribute to ambidextrism in BGs through individual implementation of the exploitation and exploration of market knowledge developed in their networks on the basis of the joint establishment by the different members of the networks of certain market oriented behaviours (see Fig. 1).

Network market orientation and dynamic capabilities

A firm's adaptation capability captures its ability to be strategically flexible and to adopt any organisational changes necessary in order to adjust to the new tendencies emerging in its environment (Gibson and Birkinshaw, 2004). In this sense, adaptation capability will be related with those organisational processes that facilitate strategic flexibility in BGs.

Petroni (1998) in a study based on the firm *Smith & Nephew*, in which he attempts to explain the processes of renewal of capabilities, points out that the essence of the adaptation capability lies in a higher ability to manage the evolution of the firm's knowledge base. According to Petroni (1998), the capability depends on its skill in managing knowledge, a factor that will determine the adaptation of its current resources. In this sense, the joint development by the members of the network of mechanisms for the management of relational knowledge may considerably reduce the time of response when experimenting with new techniques or directly implementing them (Lesser and Prusak, 2000; Sher and Lee, 2004), that is, it may facilitate its adaptation process. Thus, firms belonging to market oriented networks will find improvements in their ability to perceive the environment objectively on the basis of a vision reached by consensus that is now constructed using different sources of information and opinion from multiple external agents (Helfert et al., 2002). Even more, these firms will be able to develop the mechanisms of coordination and resolution of possible discords, necessary for this dispersed knowledge to be evaluated efficiently and, thus, be implemented in actions adapted to the new interests of consumers and conditions of competition (Helfert et al., 2002).

In addition, the theory of dynamic capabilities maintains that, because successful adaptation to the internal and external pressures suffered by the firm requires organisational surpluses, the resources available to the firm will limit the capability for adaptation that it can reach (Teece et al., 1997). In this sense, the market orientation of the network guides the firm in how to interact with other external agents (Gatignon and Xuereb, 1997), and thus influences the relative emphasis that it places on the acquisition and allocation of resources and consequently the development of its adaptation capability (Zhou and Li, 2009). Specifically, the fact of belonging to a market oriented network, through its exchange and coordination activities, will increase the availability of resources in the BG, as the possibilities of accessing them expand due to the relationships established with the rest of the members.

In the light of the above arguments we can say that the market-based strategic orientation adopted by the main network in which the BG operates will determine its efforts to perform an effective relational management of valuable

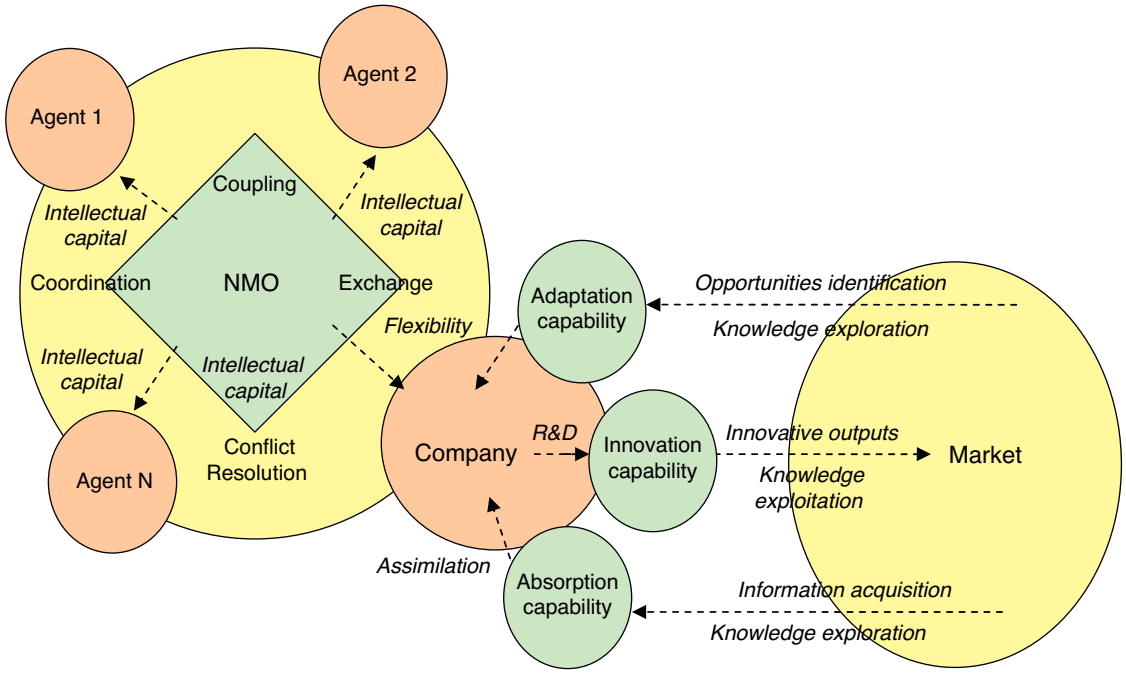

Figure 1 Ambidextrism in BGs through knowledge-based dynamic capabilities and network market orientation.

knowledge, as well as the access to resources essential and necessary for adapting flexibly to the new conditions governing the markets, i.e. will influence its capability for adaptation (Tuominen et al., 2004). We therefore propose that:

H_1. The participation of BGs in market oriented networks encourages the generation of an adaptation capability in them.

Cohen and Levinthal (1990) affirm that a firm's absorption capability depends on the stock of knowledge that it possesses, which can be transferred to its products, processes or personnel. Taking this idea into account, Tsai (2001) and Minbaeva et al. (2003), focusing on the firm's absorption capability, argue that it will depend on the degree to which the firm has been able to generate substantial sources of access to external knowledge. For these authors the joint effort made within the network to which the firm belongs is fundamental in this task. In this sense, the market orientation of the network, insofar as it implies the joint development among its members of activities and exchange behaviours and coordination regarding relational knowledge, leads to an increase in the quantity and quality of the information available to them and, in this way, can contribute to their absorption capability.

Moreover, Tsai (2001) and Minbaeva et al. (2003), paying attention to this relational effort around knowledge, point out that access to this external knowledge generated in a relational context does not guarantee its subsequent utilisation unless the firm, individually, is able to internally develop an absorption capability that will permit it to assimilate it in its internal knowledge base. In this way, firms with a high level of absorption capability will possess a strong ability to learn from the other agents in their network, integrate their external information and transform it into internal knowledge so as to apply it successfully in their business activity (Tsai, 2001; Lenox and King, 2004; Wang and Ahmed, 2007).

Both arguments lead us to posit the existence of a relationship between the market orientation of the network and the absorption capability of the BG, in which the first is antecedent of the second.

Therefore, when developing an absorption capability to permit new knowledge to be integrated with existing knowledge, the firm must move in relational contexts which encourage the use of mechanisms that facilitate access to, and effective management of, this scattered knowledge from diverse sources. In words of Nahapiet and Ghoshal (1998: 243) it requires a design of communication structures that will permit access to ''the sum of actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit''. Indeed, Cohen and Levinthal themselves, in their seminal article (1990), suggest that the absorption capability depends on the communication structures that extend beyond the frontiers of the organisation (Macpherson et al., 2004). Thus, the potential of the BG to generate the absorption capability depends not only on its knowledge resources, but also on the relationships built up with other key agents (Dyer and Singh, 1998) and on the behaviours associated with knowledge management developed jointly by them. The network's market orientation guarantees effective management of knowledge through the generation, access, exchange and integration of knowledge from different sources, and in this way, contributes to the development of the absorption capability. For this reason we propose that:

H_2. The participation of BGs in market oriented networks encourages the generation in them of an absorption capability.

The innovation capability captures the firm's ability to respond to the changes detected in the markets through the exploitation of the knowledge assimilated internally by the firm in the form of different innovation outputs generally associated with the development of new products or variants thereof (Dougherty, 1992; Daneels, 2002; Escribano et al., 2009). This capability is especially important for BGs, which need to make innovations in order to consolidate their business projects. However, as pointed out by Lin and Chen (2006), knowledge-intensive firms, as is usually the case of BGs, operate in environments of high technology, high risk, high R&D costs, great complexity and a shortening of market cycles. In these circumstances, the individual development of innovations by the firm has its possibilities of success reduced, requiring access to resources and knowledge beyond the frontiers of the firm itself (Millar et al., 1997; Chen and Lin, 2004; Lin and Chen, 2006). Indeed, numerous studies point out that the innovation capability is strongly linked to the development of mechanisms of collaboration at network level based on coordinated knowledge management (Pittaway et al., 2004; Daskalakis and Kauffeld-Monz, 2005; Gellynck et al., 2007). Thus, in the current market contexts, the innovation capability will be associated with the formulation of inter-organisational processes and routines to facilitate the creation of a common scenario for the exchange, gathering, integration and development of valuable complementary knowledge and resources that come originally from individual agents (Lin and Chen, 2006).

Participation by BGs in market oriented networks can contribute to them developing processes of coordination, exchange, conflict resolution and coupling that will be key in the generation of routines that facilitate the development of innovations. Thus, this orientation provides a unified approach that brings together individual efforts and projects, this group commitment being strengthened by the possibilities of success of the innovations brought about by the firm (Han et al., 1998; Kahn, 2001; Akman and Yilmaz, 2008). Also, it encourages openness to new ideas and to innovation as part of the organisational culture of its members, which facilitates the development of the firm's innovation capability (Hurley and Hult, 1998). Moreover, being aware that BGs normally suffer a lack of resources and knowledge to carry out effective innovations in their markets, due to the exchange and coordination activities within the network, they will be able to obtain more valuable knowledge and resources to help them to compensate for these limitations (Lin and Chen, 2006; Gellynck et al., 2007). Thus, this market-focused relational orientation provides the channels through which a firm can find and access external opportunities and resources (Hite, 2005), at the same time facilitating a better fit between capabilities that

translates into obtaining synergies among the different types of knowledge accessed by the firm (Macpherson et al., 2004). Access to these important resources and information and the better fit among capabilities will determine the firm's innovation capability. Finally, due to the processes of management and processing of the information generated, the network's market orientation will contribute to reducing a large part of the uncertainty and risks associated with processes of innovation (Langerak et al., 2007). In this respect, we suggest that:

H_3. The participation of BGs in market oriented networks encourages the generation in them of an innovation capability.

Relationship among dynamic capabilities

The above paragraphs defend the existence of a positive relationship between network market orientation and the capabilities of adaptation, absorption and innovation generated by BGs. However, are these capabilities of the same nature? If not, to what extent does this fact contribute to the relationship among them? To answer these questions the study by Lichtenthaler and Lichtenthaler (2009) is extremely useful. It advocates a classification of knowledge based capabilities according to their different nature, from exploration to exploitation. As pointed out above, exploration represents a form of learning implying the pursuit of a type of knowledge that does not exist in the organisation in order to enrich the present value, on the basis of internal management of this new knowledge by the organisation. Exploitation, on the other hand, implies being able to transform existing knowledge so that it is incorporated into the value that the organisation creates for its present customers (Prieto, 2010). Under this idea, if we analyse each of the capabilities considered, we see that the adaptation capability focuses on aspects related to strategic flexibility on the basis of the fit to the new market conditions (Wang and Ahmed, 2007). The absorption capability relates to the assimilation of information external to the firm's existing knowledge base (Cohen and Levinthal, 1990; Zahra and George, 2002). Finally, the innovation capability corresponds to the skill of exploiting the knowledge assimilated internally by the firm through the introduction of actions relating to the development of new products that will contribute to its competitiveness in the markets (Dougherty, 1992; Nonaka and Takeuchi, 1995; Daneels, 2002; Wang and Ahmed, 2007; Escribano et al., 2009). In this sense, following the classification of Lichtenthaler and Lichtenthaler (2009), it can be said that while the adaptation and absorption capabilities contribute to exploration by the firm of the new market conditions and to the internal assimilation of external knowledge associated with them, the innovation capability would clearly represent the firm's skill in exploiting this assimilated knowledge with a view to responding to the market.

Taking into account this distinction and following the ambidextrism approach, which advocates a double function in the firm of exploration and exploitation, two new hypotheses are proposed on the basis that at present, in order to sustain over time a function of exploitation of knowledge, the firm needs to be able to explore the market permanently in order to generate new valuable knowledge. In this sense, we would start from the idea that exploratory capabilities (adaptation and absorption capabilities) should translate into an improvement in the BG's innovation capability (based on the exploitation of knowledge).

Indeed, when valuing its innovation capability, the firm must avoid adopting an approach focused exclusively on its stock of resources or key competencies. As a complement, it needs to present an evolutionary aptitude, i.e. effectively perform its activity sustainably, adapting longitudinally to its environment (Helfat et al., 2007; Teece, 2007). Thus, enterprising firms must always remain alert and be flexible and adaptable (Liao et al., 2009). In this way, they elude the restrictions of rigid organisations and possess management tools that contribute to overcoming old conceptions in the management of innovation (Ontiveros, 2008). In this sense, we propose that:

H_4. The adaptation capability of BGs positively influences their innovation capability.

Furthermore, as argued by Cohen and Levinthal (1990), establishing practices to encourage the assimilation of external knowledge creates a positive incentive to invest in R&D and thus in the improvement of the firm's innovation capability. Lynskey (2004) points out that to improve the innovative activity of a new venture it is important not only to apply internally a set of capabilities attempting to achieve this objective, but also to remain alert to associate them with external sources of knowledge, acquiring the capability to assimilate and apply such knowledge for purposes of innovation. Thus, over-concentration on experience, knowledge and internal competencies could cause negative effects (Granovetter, 1973; Cohen and Levinthal, 1990). As Laursen and Salter (2006) maintain the lack of openness on the part of the firm towards its environment may reflect an organisational myopia in which managers overvalue their internal sources and undervalue their external sources. To favour the firm's innovation capability the best thing is an equilibrium between concentration on capabilities and openness to the outside world (Koch and Strotmann, 2008; Davids and Tjong Tjin Tai, 2009; Roper et al., 2010). In this respect, Vinding (2006) extols the role of the absorption capability, due to which the firm's internal capability and its external collaboration complement each other. On the basis of this capability firms will be able to capture, absorb and make use of this external knowledge, facilitating their process of innovation (Fosfuri and Tribó, 2008). So we propose that:

H_5. The absorption capability of BGs positively influences their innovation capability.

Additionally, this study proposes the existence of a relationship among the dynamic capabilities of a strategic nature. Specifically, as reflected by Cohen and Levinthal (1990) in their seminal definition of the absorption capability, the assimilation of knowledge, foundation of the absorption capability, occurs in order to adapt to the changes demanded by the markets. Thus, in order to identify real and potential market opportunities, the firm must

first have carried out a process of market analysis, implying internal learning through the pooling and interpretation of the outside knowledge generated in relation to its internal knowledge, as captured by the concept of the absorption capability.

Likewise, to carry out the appropriate adaptations required by the markets, the firm must first have achieved a certain degree of assimilation of the new knowledge generated. This knowledge, once integrated into the firm's knowledge base, is an incentive to the firm to develop a greater ability to adapt to changes by encouraging its employees to be creative and innovative, and to take the initiative (Van der Post et al., 2007) seeking methods of adapting to techniques, technologies or approaches that are new in relation to those already existing in the firm (Riemenschneider et al., 2010). This leads us to propose:

H_6. The absorption capability developed by BGs has positive effects on their adaptation capability.

Dynamic capabilities and international performance

Finally, in order to strengthen the test of the distinct nature of the dynamic capabilities considered, we propose to test the influence of each of them on the performance achieved by the firm. Indeed, following the logic maintained in the theory of ambidextrism (O'Reilly and Tushman, 2008; Andriopoulos and Lewis, 2010) the activities of exploitation, associated with efficiency, permit improvement of the organisation's performance in the short term. Exploration activities, on the other hand, associated with the adaptation and internalisation of new knowledge, are more oriented towards the sustainability of the performance in the long term (Prieto, 2010). In this sense, only the exploitation capability, in our case captured in the innovation capability, should have a direct effect on the international performance achieved by the BG. In fact, returning to Fig. 1, we see that the adaptation and absorption capabilities generate a flow of knowledge in the opposite direction to the market, i.e. from the market to the interior of the firm. On the other hand, due to the innovation capability, the BG is able to go to market in order to exploit the valuable knowledge internalised in the form of certain outputs with direct impact on the markets and, therefore, obtaining certain results (Monferrer, 2011).

Two new hypotheses are therefore proposed in which a non-significant effect is expected from positing the direct relationship of exploration capabilities with the international performance of BGs.

H_7. The adaptation capability developed by BGs has no significant effects on their international performance.

H_8. The absorption capability developed by BGs has no significant effects on their international performance.

The relationship between firms' innovation capability and their performance has been confirmed in numerous studies (Prajogo and Ahmed, 2006; Akman and Yilmaz, 2008; Chen et al., 2009). Thus, the innovation capability influences the firm's performance by providing interaction between consumers and the environment in relation to the products developed by it, thus achieving a better fit between them (Meeus and Oerlemans, 2000). It also limits the possibility of outside imitation, creating ''isolation mechanisms'', which facilitate the possibility of continuing to exploit the firm's competitive advantages (Lavie, 2006; García et al., 2007). For all these reasons, firms accept the idea that innovation is not a strategic choice, but a necessity (Nijssen and Frambach, 2000), and the innovation capability is introduced in a general way as the key factor for competing in various markets (Hamel and Prahalad, 1994; Drucker, 1999; Guan and Ma, 2003; Akman and Yilmaz, 2008). In this sense, firms that have a high innovation capability have greater possibilities of successfully developing their activity (Hurley and Hult, 1998). Thus:

H_9. The innovation capability developed by BGs has positive effects on their international performance.

Fig. 2 shows the model to be analysed.

Methodology

Sample selection and information gathering

We start from a total of 2012 Spanish firms with a set-up date after 2005 and with international activity, obtained from the *Dun and Bradstreet* and *SABI* databases. In order to refine the sample and ensure that the firms selected were BGs, a total of six selection criteria were applied at two different times: prior to the field study (secondary data) and during the field study (primary data). Thus, on the basis of the filters offered in the databases themselves, the following criteria are applied: (1) they should be firms created after 2005, which guarantees that they are new firms; (2) they should make their own strategic decisions, ruling out subsidiary or affiliated firms; (3) they should have a minimum of 3 employees and a maximum of 250, ruling out micro-firms, self-employed persons and big firms. After this process of refinement the population was reduced to a total of 1023 firms.

Next, on the basis of an in-depth bibliographical review, the questionnaire was drawn up, including the three remaining selection criteria (not available without direct consultation with the firm): (4) they should have international activity from before 3 years after their creation, indicating that they have acted in foreign markets immediately; (5) a minimum of 25% of their annual sales should be made abroad, evidence of a consolidated international presence; (6) they should form part of a network of firms with a minimum of three members. Regarding this last criterion, in order to ensure that the interviewee focused his responses on his main business network, in introductory fashion, the following definition was included, in which business networks are understood as ''*the set of relationships that the firm maintains with other agents such as customers, suppliers, competitors, consultants, government agencies, universities, research centres, market research firms, advertising agencies and sales or distribución agents*

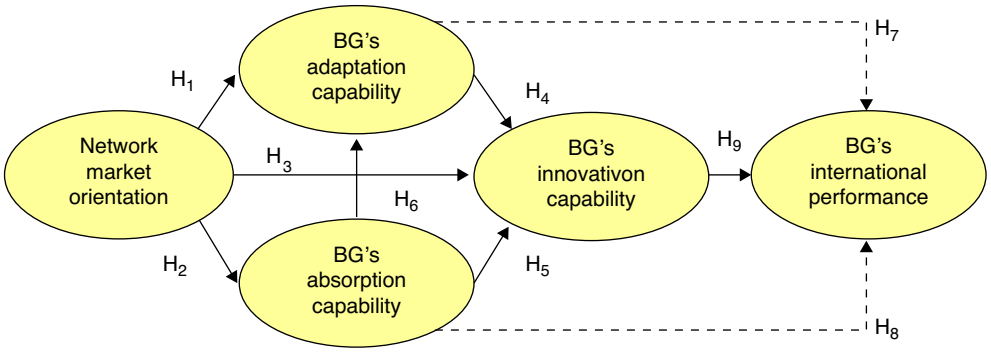

Figure 2 Model of effects of network market orientation and BG's international performance through explorative and exploitative dynamic capabilities.

with the aim of obtaining knowledge, information, technology, resources or skills''.

Once the questionnaire had been drawn up, a pre-test was performed with a pilot sample of 25 firms to ensure that the questionnaire would be correctly understood. Next, an electronic version was prepared in order to carry out the field work, which took place in the spring-summer of 2010, obtaining 303 valid responses (29.62% of the total).

The primary data obtained permit the principal characteristics of the sample to be analysed (Table 1). These are SMEs, mostly from the industrial sector (61.2% of the total), notably the agrifood, metal and textile sectors. Commerce is represented by 31.6% including firms that export and import products related to the aforementioned industrial sectors. Finally, we find less than 7.2% of firms from the services sector, including mostly financial, tourism and communication agencies. These firms have on average 28.55 employees, 41.50% of their commercialisation work is abroad, and their average age is 3.90 years.

With respect to the characteristics of the network to which they belong (Table 2), they join the network practically from their creation (96.4% after their first year of life), they are usually networks with marketing aims (in 92.5% of cases) and are composed on average of 5.81 firms, situated in places near to the firm itself (62.19% of the networks are of regional scope).

Instruments of measurement

To measure the market orientation of the network we use an adaptation of the scale proposed by Helfert et al. (2002). These authors break with the idea defended in previous studies to measure the network's market orientation through the simple adaptation of the dimensions used in the seminal scales of Narver and Slater (1990) and Kohli et al. (1993). Specifically, Helfert et al. (2002) offer a measurement of the construct taking as reference the management activities of the relationship that define the market orientation of the network, specifically 12 items spread among the following 4 dimensions: coupling (2 items), coordination (3 items), conflict resolution (3 items) and exchange (4 items).

The adaptation capability is measured using the scale of Gibson and Birkinshaw (2004), which on the basis of 3 items evaluates the degree to which the firm's management systems encourage the employees to challenge antiquated routines and practices, permit rapid response to market changes, and favour the acceptance of possible modifications in their business priorities associated with the identification of new opportunities. For the absorption capability, the scale of Chen et al. (2009) is used; this proposes a 3-item scale to measure the firm's absorption capability, understood as the ability to acquire, assimilate, transform, and exploit knowledge.

To measure the innovation capability we use an adaptation of the scale of Akman and Yilmaz (2008), consisting of 5 items that capture the main characteristics of the firm's innovation capability, such as the organisational culture based on innovation, the skills associated with the internal processes of innovation and the understanding of external elements for their innovative application.

Finally we use an adaptation of the scale proposed by Jantunen et al. (2008) to measure international performance. The general nature of these measurements means that their applicability should not differ, or be subject to any influences from sample characteristics or other variables in the proposed model. On the basis of this scale BG managers were asked about their degree of satisfaction with the results for the following aspects of their international activity (Table 5). These scales can be consulted in the final Annexe.

Validity and reliability of the scales

To refine the scales, a confirmatory factor analysis was performed using the structural equations models technique. The analyses carried out using this methodology permit us to guarantee a measurement model consistent with the theoretical proposals, supported by scales that are reliable, valid, and furthermore present a certain degree of unidimensionality.

Taking as base the recommendations of Jöreskog and Söbom (1993), we first examined the estimation parameters. We removed those indicators with standardised coefficients (λ) under 0.7, significance of the Student t statistic under 2.58 ($P = 0.01$) and R^2 under 0.49, thus ensuring fulfilment of the *strong and weak convergence conditions* (Steenkamp and van Trijp, 1991). Through this process the indicators INTER.3 of the scale of network market orientation, ADP.1 of the adaptation capability scale, ABS.1 of the absorption capability scale, and INN.4 and INN.5 of the innovation

Table 1 General characteristics of the firms.

Years of international experience[a]		Total number of employees		International activities in the value chain[b]		Activity sector	
Years elapsed	%	Employees	%	Activity	Average %	Sector	%
0	76.6	3–5	26.4	Manufacturing process	11.58	Industrial	61.2
1	19.8	6–11	25.4	Research and Development	7.40		
2	2.1	12–25	23.8	Commercialisation	41.50	Commercial	31.6
3	1.6	Over 25	24.4	Advertising and promotion	11.18		
				After-sales service	16.51	Services	7.2
Average years elapsed = 0.28		Average employees = 28.55		Average international activity = 17.63			

[a] The figure corresponds to the difference between 2010 and the date of the first international activity.
[b] Figures expressed as a percentage of total responses.

Table 2 General characteristics of the main networks of the studied firms.

Network size		Geographical scope of the network[a]		Type of network	
Firms	%	Scope	%	Type	%
3	55.6	Regional	62.19	Social network	2.5
4–5	19.4			Technological network	14.9
6–10	11.1	National	15.42	Institutional network	2.0
>10	13.9			Infrastructure network	5.5
				Marketing network	92.5
Average firms = 5.81		International	22.39	Market network	15.4

[a] According to the location of most network members.

capability scale were eliminated. Next, to verify whether or not the process of refinement of the scales resulting from the above tests had altered their level of reliability, several tests were performed. To analyse the *internal consistency* we used the Cronbach alpha (Nunnaly, 1979). Other complementary tests of reliability were carried out: the *composite reliability* of the construct and the analysis of the *average variance extracted* (see Table 3).

Finally, the *convergent and discriminant validity* were analysed. With reference to the former, it was sufficient to observe that the estimated value of the correlations between the dimensions that configure the scales was high and significant. For discriminant validity the confidence interval test was performed, verifying that ''1'' was not found in the intervals estimated for the correlations between each pair of dimensions (Table 4). Having reached this point, we can say that the measurement model proposed is reliable and valid for use in the testing of hypotheses.

Control variables

To analyse the non-response bias, the responses of the first 50 interviewees who responded were compared with the 50 who took longest to reply. This method is based on the premise that interviewees who respond quickest represent the average of the interviewees, while the slowest ones represent the average of those not interviewed. Based on this premise, an analysis of means for independent samples is performed for each of the items, assuming in all cases the equality of variances, and thus the absence of bias.

Table 3 Summary of the results after the definitive factor analysis.

Scale	1st order								2nd order
	PERF	ADP	ABS	INN	COUP	COOR	CONF	EXCH	NMO
Parameters	0.75–0.87	0.73–0.83	0.76–0.87	0.82–0.88	0.89–0.92	0.77–0.91	0.81–0.93	0.77–0.90	0.81–0.96
α Cronbach	0.887	0.793	0.749	0.827	0.845	0.871	0.887	0.847	NP
CR	0.893	0.760	0.802	0.837	0.906	0.897	0.912	0.891	0.941
AVE	0.684	0.651	0.706	0.743	0.837	0.768	0.799	0.763	0.822
Significant loads				All $t > 2.58$		R^2		All $R^2 > 0.49$	
χ^2/df		RMSEA	SRMR	GFI	AGFI	NFI	NNFI	IFI	CFI
1.161		0.056	0.050	0.906	0.872	0.916	0.946	0.957	0.957

Table 4 Discriminant validity analysis using the confidence interval (CI) test.

Pair of variables	ADP-ABS	ADP-INN	ADP-NMO	ABS-INN	ABS-NMO
I.C.	[0.502; 0.718]	[0.586; 0.778]	[0.271; 0.507]	[0.527; 0.723]	[0.266; 0.498]
Pair of variables	INN-NMO	ADP-PERF	ABS-PERF	INN-PERF	OMR-PERF
I.C.	[0.235; 0.467]	[0.101; 0.365]	[0.189; 0.437]	[0.105; 0.357]	[0.348; 0.550]

In addition, several ANOVA are performed to confirm that the characteristics of the sample have no effect on the constructs of the model. Specifically, based on the characteristics defined in Tables 1 and 2, we use as control variables based on the data gathered in the questionnaire: sector of activity, international consolidation, age, international seniority, size, seniority in the network (all these variables related to the firm) and size of the network. In the sector of activity we take into account whether the firm operates in industry, commerce or services. International consolidation is measured as the average percentage of foreign activity taking into account the activities of the chain of value set out in Table 1 (manufacture, research and development, commercialisation, advertising and promotion, and after-sale service). This variable is constructed on five categories in ranges of 5% (up to 5%; 6–10%; 11–15%; 16–20%; over 20%). The age of the firm is calculated from the difference between the year when the field work was carried out (2010) and the firm's date of establishment. Taking into account that the first of the selection criteria demanded in the process of refinement of the sample is that they should be firms created later than 2005, this variable is constructed in five categories (from 0 to 4 years). Seniority of international operation corresponds to the difference between 2010 and the year of the first international activity. The four categories used in the definition of this variable coincide with those indicated in Table 1 (from 0 to 3 years). For the size of the firm the number of employees is considered through five categories (up to 5; 6–10; 11–15; 16–20; over 20). Seniority in the network is measured by the years elapsed since the firm joined it. As with seniority of international operation, the variable is constructed in four categories (from 0 to 3 years). Finally, the size of the network is measured as the number of agents forming it, taking as reference the four categories shown in Table 2 (3; 4–5; 6–10; over 10).

We study the influence of each of these variables on the means of each of the first order factors of the model, calculated from the items resulting from the process of refinement of the scales. As can be observed in Table 5, no significant differences were found in any of the analyses.

Common method variance bias

The process of information gathering during the field work implies that the data of each of the variables are captured at the same time and from the same informant. This may lead to a possible problem of bias due to the procedure followed, normally known in the literature as ''*common method variance bias*''.

To test this possibility we use the Harman test for one factor (Harman, 1976), which assumes that if this bias exists, on the basis of a factor analysis a single factor should be expected to accumulate most of the covariances of the

Table 5 Results of the ANOVAs for control variables.

Control variable	ANOVA	1st order factor							
		PERF	ADAP	ABS	INN	COUP	COOR	CONF	EXCH
Sector of activity	*F*	1.081	0.416	0.871	0.120	2.119	1.767	0.904	1.735
	Sig.	0.343	0.661	0.422	0.887	0.126	0.139	0.464	0.140
International consolidation	*F*	0.616	1.314	1.422	1.322	0.873	0.391	0.400	0.618
	Sig.	0.956	0.169	0.108	0.163	0.685	0.999	0.999	0.955
Age of the firm	*F*	0.643	0.604	1.112	0.399	1.214	1.120	1.520	1.169
	Sig.	0.696	0.726	0.361	0.878	0.306	0.349	0.140	0.315
Seniority of international operation	*F*	1.272	1.315	0.825	0.452	1.701	1.387	1.669	1.676
	Sig.	0.236	0.240	0.595	0.903	0.100	0.206	0.108	0.106
Size of the firm	*F*	0.999	1.148	0.606	0.502	0.811	0.638	0.874	0.671
	Sig.	0.499	0.311	0.960	0.992	0.768	0.942	0.681	0.918
Seniority in the network	*F*	1.634	1.037	0.326	0.512	1.444	0.338	0.700	1.260
	Sig.	0.119	0.430	0.976	0.886	0.184	0.973	0.732	0.276
Size of the network	*F*	0.753	1.235	0.603	1.298	0.535	0.677	0.888	0.683
	Sig.	0.683	0.260	0.816	0.257	0.869	0.752	0.558	0.747

independent and dependent variables (Podsakoff and Organ, 1986). In this sense, as recommended by Podsakoff et al. (2003) a factor analysis is performed on the 22 indicators resulting from the process of refinement of the scales, using the method of principal components analysis (Velicer and Jackson, 1990) which examines the factor solution without rotation.

The results of the factor analysis show the existence of 8 factors with eigenvalues higher than 1. These factors explain 75.984% of the variance among the 22 items and the first of the factors accumulates 29.493%. Thus, because various factors are identified and the first of them does not accumulate the greatest part of the variance, a substantial part of the common method variance bias seems not to be present (Podsakoff et al., 2003; Green et al., 2008a; Friedrich et al., 2009). Therefore, we can conclude that the bias produced by the method used is not a problem for the validity of the results obtained in the testing of the hypothesis.

Results

The hypotheses, as well as the validations of the scales, were tested using structural equations models. These models have been shown to be useful when the objective of the research is to discover the causal contributions of one variable to another in a non-experimental situation (Jöreskog and Söbom, 1993). Furthermore, unlike techniques such as multiple regression, factor analysis, multivariate analysis of variance, etc., which only permit us to examine one relationship at a time, analysis by means of the structural equations model (SEM) is able to explore simultaneously a series of relationships of dependence (Hair et al., 2006). Therefore, this technique is particularly useful when a dependent variable becomes an independent variable in subsequent relationships of dependence. Thus, this set of relationships, each with dependent and independent variables, is the basis of the SEM.

Specifically, the hypotheses of the proposed model are tested with the EQS 6.1 program, obtaining the results shown in Table 6. All the hypotheses are confirmed except H_3. Thus, the market orientation of the network is shown to positively and significantly affect these firms' capabilities of adaptation and absorption (H_1: $\lambda = 0.327$; $t = 4.308$ and H_2: $\lambda = 0.345$; $t = 4.892$, respectively), which in turn are connected (the absorption capability presents a positive and significant influence on the adaptation capability; H_6: $\lambda = 0.481$; $t = 6.874$) and has positive effects on their innovation capability (H_4: $\lambda = 0.518$; $t = 6.934$ and H_5: $\lambda = 0.443$; $t = 6.017$, respectively). It is confirmed that only the innovation capability, of an exploitative nature, presents a direct effect on the international performance achieved by the BGs (H_9: $\lambda = 0.151$; $t = 2.291$), the relationships with regard to the exploratory capabilities not being significant, as expected in hypotheses H_7 and H_8.

Discussion

Taking as reference certain theoretical currents that defend the importance of the management of knowledge of the markets (Autio et al., 2000; Andersson, 2004; Knight and Cavusgil, 2004; Sapienza et al., 2006; Acedo and Jones, 2007; Gassmann and Keupp, 2007; Weerawardena et al., 2007; Zhou, 2007; Armario et al., 2008; Nordman and Melen, 2008; Perks and Hughes, 2008; Saarenketo et al., 2008; Zahra and Hayton, 2008; Brennan and Garvey, 2009; Casillas et al., 2009), the relationships established with other agents due to membership of business networks (Andersson, 2004; Chetty and Blankenburg, 2000; Johanson and Vahlne, 2003, 2009; Sharma and Blomstermo, 2003; Blomstermo et al., 2004; Moen et al., 2004; Coviello, 2006; Loane and Bell, 2006; Gabrielsson et al., 2008; Perks and Hughes, 2008; Escribano et al., 2009; Ojala, 2009), and of the need to develop certain capabilities that make possible the continuous adaptation, renovation or reconfiguration of the firm in the face of the dynamism that nowadays governs the markets (Teece et al., 1997; Eisenhardt and Martin, 2000; Zahra and George, 2002; Zahra et al., 2006; Wang and Ahmed, 2007; Green et al., 2008b; Hou, 2008; O'Reilly and Tushman, 2008; Zhou and Li, 2009), the model proposed in this study has focussed on

Table 6 Results of the estimation of standardised parameters for the model of effects.

Relationship	Load	*t*	Hypothesis	Result
NMO → BG's adaptation capability	0.327	4.308*	H_1	Not rejected
NMO → BG's absorption capability	0.345	4.892*	H_2	Not rejected
NMO → BG's innovation capability	0.013	0.187	H_3	Rejected
BG's adaptation cap. → BG's innovation cap.	0.518	6.934*	H_4	Not rejected
BG's absorption cap. → BG's innovation cap.	0.443	6.017*	H_5	Not rejected
BG's absorption cap. → BG's adaptation cap.	0.481	6.874*	H_6	Not rejected
BG's adaptation cap. ∼ BG's int. performance	0.130	1.377	H_7	Not rejected
BG's absorption cap. ∼ BG's int. performance	0.048	0.582	H_8	Not rejected
BG's innovation cap. → BG's int. performance	0.244	3.786*	H_9	Not rejected

Goodness-of-fit indicators

χ^2/df	RMSEA	SRMR	GFI	AGFI	NFI	NNFI	IFI	CFI
1.110	0.059	0.044	0.902	0.866	0.911	0.940	0.952	0.952

* $p < 0.001$.

the importance of two aspects that are considered key in the international activity of BGs: the market orientation of the network in which they participate and their dynamic capabilities.

Specifically, this study rises to the challenge made by several studies that propose two possible lines of research of great importance for improving knowledge of the dynamic capabilities construct. On the one hand, the attempt to identify those factors providing the catalyst to start the development of dynamic capabilities (Chakravarthym and Gargiulo, 1998; Eisenhardt and Martin, 2000). And, on the other hand, to examine in greater depth the determination of the specific way in which these capabilities interrelate (Eisenhardt and Martin, 2000; Pablo et al., 2007). In this respect, the results obtained support the assumptions of previous studies that, in contexts of high dynamism and complexity, the management of organisational knowledge is the starting point from which new capabilities are constructed or existing ones are adapted (Nonaka et al., 2000; Becerra and Sabherwal, 2001; Wang et al., 2007). In this sense, this study demonstrates empirically that relational management of knowledge associated with the market orientation of the network, which makes it possible to manage the construction, definition, access, organisation, exchange and utilisation of knowledge assets in all their forms among the different agents forming the network to help to create, share and use the knowledge effectively in the markets, becomes a fundamental factor for the BG in its capability to continually improve its skills in order to respond rapidly to changes in the environment, or in other words, when developing its dynamic capabilities.

Additionally, this study goes one step beyond and, from the isolated consideration of the three knowledge-based dynamic capabilities with most acceptance in the literature (adaptation, absorption and innovation capabilities), studies the specific manner in which such influence occurs. From the results obtained, we find a positive relationship between the market orientation of the network and the adaptation and absorption capabilities of the BGs, as well as an effect of both on the innovation capability. Therefore, we observe that the relationship of these capabilities to the market orientation of the network is different, being synthesised in the existence of an indirect relationship between the network's market orientation and the BGs' innovation capability through the mediation of the adaptation and absorption capabilities.

The explanation of these results is related to the nature of the dynamic capabilities considered in the model. Thus, taking as reference the study by Lichtenthaler and Lichtenthaler (2009) the dynamic capabilities used in this study are differentiated by whether to a greater extent they take a strategic approach (associated with exploration) or rather an operational one (associated with exploitation). On the basis of this differentiation, the market orientation of the network, based on the relational management of knowledge, is shown to favour the development by BGs of certain strategic capabilities like the adaptation and absorption capabilities, which contribute to the identification of market opportunities and to the continuous analysis of the knowledge associated with them for its internal assimilation, i.e. to the permanent exploration of the markets (Cohen and Levinthal, 1990; Van den Bosch et al., 1999; Zahra and George, 2002; Wang and Ahmed, 2007). On the basis of the valuable knowledge generated and assimilated, the firm will increase its capability to exploit it in the markets in the form of different innovative actions associated, principally, with the development of new products (Wang and Ahmed, 2007). In this sense, this study represents a step forward in the literature relating to ambidextrism which, from the theoretical point of view, has hitherto emphasised the need for simultaneous performance of the functions of exploration and exploitation within the firm (March, 1991; Eisenhardt and Martin, 2000; Gavetti and Levinthal, 2000; Katila and Ahuja, 2002; Raisch and Birkinshaw, 2008; Luo and Rui, 2009), without having tested empirically the possible relationship between the two.

Indeed, our study shares the idea that, in the current conditions, the BG must present both functions in order to ensure its sustainability. In addition, it is determined that the exploration and exploitation functions, defined theoretically as disparate, and even in some cases in competition, on the basis of different configurations of knowledge flows, as well as different associated costs and benefits (Kang et al., 2007; Kang and Snell, 2009; Luo and Rui, 2009), not only coexist in the firm, but also are interrelated and, therefore, can be seen as complementary. Thus, focusing solely on the exploitation of knowledge will not be sufficient to ensure the sustainability of the firm since the dynamic and changing market conditions will lead to the firm needing to explore the market in search of new external knowledge associated with the new tendencies in order to maintain its contribution of value in the market through exploitation of it (Jansen et al., 2009; Mom et al., 2009; Prieto, 2010). Indeed, the results obtained show that the influence over international performance achieved by the BG differs according to the nature of the capability considered. Thus, it is the exploitation capability that presents direct effects on the performance of the BG, while the influence of the exploration capabilities is exerted indirectly through the first. In this sense, the exploration capabilities (adaptation and absorption) will favour the generation by the firm of valuable knowledge associated with market opportunities, as well as its internal assimilation. However, this internal knowledge will not have a real impact on the market, and hence on the achievement of higher performance by the BG in its foreign markets, unless the firm is able to complement these capabilities with a skill of an operational nature that will permit it to exploit the knowledge through the launching of certain innovative outputs. Therefore, the results obtained support the posture of other seminal studies that emphasise the need to reconcile the tension implicit in the processes of exploration and exploitation of knowledge in the organisation (March, 1991; Levinthal and March, 1993; Gibson and Birkinshaw, 2004; Jansen et al., 2005; Andriopoulos and Lewis, 2009).

Moreover, this study examines in depth the relationship between the dynamic capabilities of a strategic nature, testing for the existence of a positive effect between the absorption capability and the adaptation capability. In this sense, as reflected by Cohen and Levinthal (1990) in their seminal definition of the absorption capability, the assimilation of knowledge, a fundamental element of the absorption capability, takes place in order to adapt to the changes demanded by the markets.

In sum, in response to the demands made in recent studies regarding the lack of studies focussing on the determination of specific ways of applying ambidextrism (Jansen et al., 2005; Andriopoulos and Lewis, 2009; Raisch et al., 2009), this study shows the importance for BGs of developing a dual function of exploration and exploitation, which in this case is determined by the generation, from the market orientation adopted in the ambience of their main network, of their different knowledge-based dynamic capabilities. In this way, BGs acquire an ambidextrous approach, which will be important in trying to guarantee their survival in the current highly dynamic and competitive contexts.

Conclusions

The motivation for this study is associated with the emergence in the literature on *international entrepreneurship* of studies that recognise the increasing importance of the phenomenon of BGs in their contribution to the economic and social progress of globalised economies (see Zahra and George, 2002; Oviatt and McDougall, 2005; Rialp et al., 2005; Hessels and Van Stel, 2007).

One of the fundamental questions posed by the emergence of this new type of firms, and which constitutes the general objective of this study, is to try to determine the key factors that make these firms able to operate sustainably in the international markets from the start and, at the same time, be able to contribute a model of relationships that captures the specific way in which these factors interrelate.

Specifically, the results obtained in our study show that the adoption by the network to which the BG belongs of a market-based strategic orientation endows its members with certain shared mechanisms and behaviours associated with the relational management of knowledge that help it to better understand its customers and the environment surrounding them, thus being able to generate adaptation and absorption capabilities that facilitate continuous exploration by the firm of the changing conditions of its actual or potential markets, which positively affect the capacity of these firms to design and implement the most appropriate innovative actions in response to the markets, translating into the achievement of higher performance.

This stance, distancing itself from the traditional theories of the internationalisation of the firm, permits us to contribute an adapted vision of them in the ambience of the BGs, whose characteristics differ from those corresponding to the firms studied in such theories.

Indeed, on the basis of two assumptions associated with the gradualist and relational theories of internationalisation, which respectively defend the importance of market knowledge and of the external relations established by the firm, the network's market orientation is identified as a key variable helping to understand how the knowledge dispersed in several organisations can be consolidated as an essential element in the sustainability of BGs in their foreign markets. In this sense, we contribute to the literature by testing in a causal model the concept of the market orientation of the network, in response to studies like those by Tuominen et al. (2004), Berghman et al. (2006) or Racela et al. (2007), who emphasise the necessity of including a relational aspect in the assumptions of market orientation. Also, we use a definition and measurement of the construct based on behaviours and mechanisms specific to the network, and not on the mere adaptation of the seminal models of orientation to the individual market (Helfert et al., 2002).

Likewise, on the basis of the recent developments in the framework of the theory based on the resources and capabilities of the firm, we identify the dynamic capabilities of adaptation, absorption and innovation as factors guaranteeing the BGs' involvement in, and continued commitment to, updating their resources and capabilities as required by the new demands of the markets. Indeed, we have to take into account that, at the present time, the effect of any organisational factor is usually subject to significant causal ambiguity regarding the firm's maintenance of its capability to use the knowledge generated to continue to take advantage of the market opportunities that present themselves, particularly in contexts of rapid changes in the environment, like the present (Casillas et al., 2009; Liao et al., 2010, 2011). Thus, as competition intensifies, lifecycles are shortened, and the needs for innovation expand, the reconfiguration and improvement of the capabilities acquires a decisive role in the result of geographically disperse and globally integrated operations (Luo, 2000) and, therefore, in the survival of the BGs. In this way, we respond to the manifest need in the recent literature to complement the original foundations of the theory of internationalisation, based on the resources and capabilities of the firm, with the theory of dynamic capabilities, in order to update the former's static vision of markets and take into account the evolving nature of resources and capabilities.

Moreover, it is demonstrated that in order to understand the effect of network market orientation on the dynamic capabilities generated by BGs, as well as the influence of such capabilities on the performance achieved by these firms, it is fundamental to take into account in what measure these capabilities contribute to the exploration or exploitation of knowledge. In this sense, as we have noted above, this study makes an important contribution to the literature relating to ambidextrism by testing empirically the existence of a relationship between the two types of capabilities. The present study thereby responds to recent studies such as Protogerou et al. (2008) and Lichtenthaler and Lichtenthaler (2009) which demanded analysis of the relationships between dynamic capabilities in terms of their different nature. Furthermore, our research contributes to the demands made in recent studies such as Andriopoulos and Lewis (2010) emphasing the lack of empirical studies to demonstrate specific ways in which the firm can develop an ambidextrous approach.

Limitations and future lines of research

This study is not without certain limitations that must be taken into account when valuing the conclusions set out above. These same limitations lead us to propose possible lines of research to be undertaken in the future.

First, we identify a series of limitations of a theoretical character. In this respect, our model represents a specific reference contribution on the basis of which new effects can be proposed through the consideration of new factors. Indeed, we are aware that our model does not contemplate

all the variables that could explain the dynamic capabilities of BGs, hence future studies can approach this question. Likewise, we believe it to be interesting for future studies to consider the introduction of other result variables into the proposed model, which will allow analysis of the consequences associated with the development of these capabilities by the BG. In this same line, focusing on the network market orientation construct, future papers could study the specific effects of the latter on the BG's internationalisation process, analysing how this is conditioned by belonging to the network and the firm's positioning in it, as well as by the accumulation of knowledge, experience and resources from its network partners.

Second, paying attention to the selection of the study sample, having opted solely for BGs of the Spanish state limits the possible generalisation of the results to other international contexts. Taking into account this limitation, new studies could test the relationships posited in other international contexts, which would favour the generalisation of the results achieved.

A third limitation is that our empirical study has been based on the responses to a single interviewee in each of the firms and networks making up our sample. This poses a double question. On the one hand, we may ask whether a single interviewee can respond adequately for the whole organisation. On the other hand, our survey was addressed to the manager of a single firm who responded about the operation of a network of firms as a whole. In addition, the fact of having carried out the field study by means of an online questionnaire may lead us to question whether the person responding to the questionnaire is really the manager of the firm.

The use of transversal data, as is the case here, may be seen as a limitation when drawing causal inferences. In this sense, future studies could study the posited relationships using longitudinal data, as well as proposing qualitative studies at different levels taking into account the responses of agents of different rank within the firm, and of different members of the network to which the firm belongs.

Annexe.

Network market orientation measurement scale.

COUPLING
Extent to which the firms in my main relations network...
1. ...update our offerings to customer needs. (COUP.1)
2. ...update product distribution to customer demands. (COUP.2)
COORDINATION
3. ...discuss each members' tasks in collaboration with the customer (COOR.1)
4. ...ensure that the commitments agreed by both parties are fulfilled. (COOR.2)
5. ...discuss the steps required to achieve the network's joint objectives (COOR.3)
CONFLICT RESOLUTION
6. ...when there are conflicts we try to impose our individual interests at all costs. (CONF.1)[a]
7. ...when there is a conflict. we wait for the situation to calm down through simple inertia. (CONF.2)[a]
8. ...when there is a conflict. we try to reach an acceptable compromise for all parties. (CONF.3)
EXCHANGE
9. ...we engage in shared learning about specific customer needs. (EXCH.1)
10. ...we exchange information to act quickly in the event of customer problems with the products or services we offer. (EXCH.2)
11. ...we exchange knowledge in order to improve our offers to customers. (EXCH.3)
12. ...we jointly develop solutions for these customers. (EXCH.4)

Source: Helfert et al. (2002).
[a] Reverted indicators.

Adaptation capability measurement scale.

ADAPTATION CAPABILITY
1. The workers in our firm are able to find alternative ways of doing their work (ADP.1)
2. Our firm is able to develop flexible processes to respond rapidly to changes and opportunities detected in our markets. (ADP.2)
3. Our firm is able to change strategy rapidly according to our business priorities. (ADP.3)

Source: Gibson and Birkinshaw (2004).

Absorption capability measurement scale.

ABSORPTION CAPABILITY
1. Our firm is able to give external knowledge a commercial application. (ABS.1)
2. Our firm is able to understand. analyse and interpret information from the environment (ABS.2)
3. Our firm is able to combine its internal knowledge with external information. (ABS.3)

Source: Chen et al. (2009).

Innovation capability measurement scale.

INNOVATION CAPABILITY
1. Our firm has an organisational culture that promotes innovation (INN.1)
2. Our firm is able to use knowledge from various sources to develop products efficiently and rapidly. (INN.2)
3. Our firm is able to identify changes in the market and rapidly apply them to its own products and processes. (INN.3)
4. The employees in our firm are able to contribute to activities such as product development. improving the innovation process and developing new ideas. (INN.4)

Annexe (*Continued*)

INNOVATION CAPABILITY
5. Our firm is able to evaluate new ideas from customers, suppliers, etc. and take them into account in product development. (INN.5)

Source: Akman and Yilmaz (2008).

International performance measurement scale.

INTERNATIONAL PERFORMANCE
1. Turnover (PERF.1)
2. Market share (PERF.2)
3. Profitability (PERF.3)
4. Market access (PERF.4)
5. Global satisfaction (PERF.5)

Source: Own work based on Jantunen et al. (2008).

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