

Inter-Firm Alliances: A Mechanism to Develop Innovative Capacity in SMEs

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Abstract: The main research objectives of this study are: To identify and categorize factors that SMEs take into account when deciding to enter an inter-firm alliance; verify the importance of innovation-related motives and measure the influence of firms' characteristics on SMEs' motives. To achieve this purpose, a random sample of 163 SMEs supplied by the Informa D&B Portugal database was surveyed by email and data was collected through an online questionnaire. For data analysis, a one-way ANOVA and Tukey test were used. From the findings obtained, the motives for entering inter-firm alliances were grouped into three different factors: Innovation, operational improvements and market reasons. Several significant differences were also found between manufacturing and service industries as well as between firms focusing on the domestic and export markets. This study seeks to extend the findings of previous inter-firm alliance literature and more particularly the motives for SMEs entering into such agreements and especially in the service sector.

Key words: Motives, inter-firm alliances, innovation, SMEs, Portugal

INTRODUCTION

Small and Medium Enterprises (SMEs) due to their lack of resources (Okamuro, 2007) and liabilities of smallness (Aldrich and Auster, 1986), newness (Baum and Oliver, 1991) and connectedness (Rickne, 2006) have more difficulty dealing with fast technological change and product innovation than big companies (Hagedoorn, 1993).

In this context for Teng (2007), inter-firm alliances play a key role in growth and entrepreneurial development activities, namely in innovation, new firm creation and corporate renewal. In fact, firm skills and external cooperation are not substitutes but complement each other. Inter-firm alliances allow SMEs to develop critical capabilities for growth and innovation through access to external resources and knowledge which are otherwise unavailable (Khanna *et al.*, 1998). At present, inter-firm alliances are an innovation-generating procedure, challenging SMEs' learning and entrepreneurship skills in order to create new products and services (Liou and Liou, 2009).

According to Harrison *et al.* (2001), firms should look for complementary resources in order to make up for internal weaknesses. However after doing this, they

should exploit synergies between their original skills and those of their partners. Lorenzoni and Ornati (1988) oppose the traditional view of SMEs' growth from inside-out, proposing a vision from outside-in through the formation of inter-firm alliances, allowing firms to specialise in those activities where they may create competitive advantage. For Welbourne and Pardo-del-Val (2009), the most successful firms will be those able to build relational capital to face the increasing speed of change. To be competitive and exploit new opportunities, entrepreneurs need resources they do not have most of the time. This builds pressure on them to build formal and informal relations with firms and entrepreneurs that is they are forced to negotiate and cooperate.

Santamaria *et al.* (2009) concluded that technological innovation benefits the activities of SMEs in low and medium technological sectors and Barge-Gil (2010) points out that SMEs and firms outside the high-tech sectors are those benefiting most from cooperation to foster their innovation activities. Nieto and Santamaria (2010) confirmed that technological collaboration is a critical factor for SMEs to improve innovativeness, especially product oriented innovation.

Gnyawali and Park (2009) argue that the study of innovation and cooperative alliances with competitors has

been focused on big companies. The conclusions of Barge-Gil (2010) refute the idea that firms with strong networks, meaning large firms and firms with a technological profile, the focus of previous studies give more value to inter-firm alliances. In fact, SMEs are the ones establishing inter-firm alliances to develop new products and processes. Thus for the purpose of this study, researchers define inter-firm alliances (formalized or not) as a mutual and voluntary decision adopted by two or more independent firms in order to trade or share resources for mutual benefit.

In spite of the opportunities that might go along with inter-firm alliances, there is only limited empirical evidence of the impact of this strategy on SMEs. Against this background, researchers believe that more systematic empirical research is necessary as there are many unanswered questions regarding the motives for these types of entrepreneurial relationships. This applies in particular to SMEs. Therefore, the main research objectives of this study are:

- To identify and categorize factors that SMEs take into account when deciding to enter an inter-firm alliance
- Verify the importance of innovation-related motives
- Measure the influence of firms' characteristics on SMEs' motives

This study makes several contributions to the study of inter-firm alliances:

- It is an empirical investigation of Portuguese SMEs' motives for entering inter-firm alliances
- It targets various sectors, including services and agriculture which is quite rare and may bring new insights to the field of SME inter-firm alliance studies
- It identifies and categorizes factors regarding how Portuguese SMEs evaluate motives for alliance formation
- It measures the influence of firms' characteristics on SMEs' motives for alliance formation

Theoretical background

Inter-firm alliances and motives: For Gulati (1998), inter-firm alliances are voluntary agreements between firms that exchange or share resources and engage together in the development of products, services or technologies. There are two types of alliances: Pooling and complementary, the latter characterised by decreasing levels of resource similarity (Das and Teng, 2000). According to Smith *et al.* (1995) alliances can be formal,

characterised by contractual duties and formal structures of control and informal, flexible agreements controlled by behavioural norms. Besides, they can be vertical with suppliers or customers and horizontal when involving competitors. For Culpan (2009), alliances can be bilateral when engaging two firms or multiple relations when engaging three firms or more.

According to Todeva and Knoke (2005), alliances are organizational forms between markets and hierarchies that combine different degrees of market interaction and bureaucratic integration. For Menard (2006), alliances are market substitutes because markets are unable to promote the right combination of resources and skills. Also, firm integration (hierarchy) would reduce flexibility and weaken incentive regimes. He concludes that combining resources only makes sense based on the assumption of a continuous relationship between alliance members.

Eisenhardt and Schoonhoven (1996) argue that alliances are cooperative relations that follow a logic of strategic resource needs and opportunities of social resources. Inter-firm alliance formation for the entrepreneurial firm lies in a combination of a vulnerable strategic position (new markets, technological innovation) and the strong social position of management teams (strong environmental ties and social status). According to Lavie (2006), firms in a weaker competitive position, as is the case of SMEs when forming alliances may access resources without paying their total cost. Thus, relational factors play a greater role than ex ante limits to competition as argued by traditional resource based theory. Building strong ties with large companies is vital for SMEs' growth because due to their lack of resources SMEs need large companies to finance new product development and to implement marketing strategies to overcome the liability of smallness (Stuart, 2000). Morris *et al.* (2007) also concluded that cooperation among SMEs is very common, even within the same business. Trust and commitment are the key factors for success, as happens with non-competitors. Mutual benefits are critical in this type of agreement, namely benefits related to resources, information and market position.

For Grant and Baden-Fuller (2004), the main reason for inter-firm alliance formation is to access knowledge instead of its acquisition. Firms acquire knowledge from an alliance partner when they enter a new business or develop new skills or capabilities (Baum *et al.*, 2000). In this context, alliances are opportunities to create knowledge that can be replicated in the firm which are themselves benefits, such as technological or market knowledge. Knowledge transfer expresses itself

through the exchange of knowledge and performance levels of the receivers of that knowledge (Inkpen and Tsang, 2005). According to Inkpen (1998), knowledge develops skills that allow organizational action and renewal. Strategic alliances have increased because firms understand they are unable to deal alone with a growing level of strategic focus, flexibility and innovation in their environment.

For Khanna *et al.* (1998), alliances allow private and social benefits. The first are those earned unilaterally by the company learning from partners' skills and applying them in areas unrelated to the alliance. The second are those each partner receives from collective application of both partners' knowledge in areas related to the alliance. When the ratio of private to common benefits is low, the alliance is closer to a pure cooperation model. Parkhe (1993) argues that opportunistic behaviour may inhibit cooperation. Cooperation can only be strong when firms take into account longer time horizons, interact more frequently and behave more transparently what he calls the shadow of the future.

Papadopoulos *et al.* (2008) studied how heterogeneity and asymmetry impact on firms' relations. Too much heterogeneity may imply a loss of synergies while too much asymmetry may lead to opportunistic behaviour. The impact and share of gains resulting from asymmetric partners is a key issue for SMEs. Indeed, SMEs are generally the weakest link in an alliance made with large companies. The issue of learning races, raised by Hamel (1991) and Makhija and Ganesh (1997) when one partner learns more rapidly than the others, thus creating the conditions to abandon the alliance, is critical for SMEs because due to their scarcity of resources, they have less capacity to manage the risks associated with opportunism as suggested by transaction cost economics. Therefore, they are more concerned about this type of behaviour (Dickson *et al.*, 2006). However, studies have concluded there are always gains for both parties in different alliance focuses, namely in R&D, new product development, marketing and licensing agreements. Accordingly, partner asymmetry is not an obstacle per se to alliance formation due to concerns of appropriation by alliance partners (Alvarez and Barney, 2002; Das *et al.*, 1998; McConnell and Nantell, 1985; Kalaianam *et al.*, 2006).

The crucial link between inter-firm alliance formation and market position has been established by different authors. For Mytelka (1991), a firm's competitiveness may be more dependent on its network of partnerships than on its dimension. Nooteboom (1994) concluded that SMEs' success against larger competitors lies in being able to

manage their external networks efficiently. Varadarajan and Cunningham (1995) argue that firm relationships are a critical factor because a partnership may only be understood as a strategic alliance when it helps partners to attain competitive advantage. The same view is shared by Chen and Chen (2002) when they consider that firms enter alliances to service their target markets, since no firm is large enough to stand alone, being compelled to share resources and skills.

The reasons for strategic alliance formation are well studied in the literature. The study of motives for strategic alliance formation in SMEs emerged in the late nineties. Until then, its study was mainly focused on large multinational and technology-based companies (Kirschbaum, 2005; Street and Cameron, 2007). Thus, Table 1 shows the main motives (general and specific to SMEs) that can be considered in inter-firm alliance formation.

Inter-firm alliances and innovation in SMEs: Innovation plays a key role in our society driven by the continuous introduction of new products and services, characterized by shortened life cycles and transient consumer preferences. Therefore, there are opportunities for cooperation between SMEs and large firms in emerging industries to exploit technological knowledge and transfer resources for product commercialization. SMEs' output and their cooperation agreements are not mutually reciprocal and innovation is explained by inter-firm alliances (Shan *et al.*, 1994). This view is shared by Hagedoorn (1993) who found a strong correlation between the growing complexity of technological developments and the use of external technological sources through technology-based alliances.

The importance of innovation based on inter-firm alliances has been called open innovation and defined as the use of purposive inflows and outflows of knowledge to accelerate internal innovation and to expand the markets for external use of innovation, respectively (Chesbrough *et al.*, 2006). The researches wanted to present it as a new paradigm for the management of innovation. Actually, this has existed for quite a long time, as confirmed by Dahlander and Gann (2010) who trace its roots to the work on absorptive capacity (Cohen and Levinthal, 1990) and the exploration versus exploitation issue (March, 1991) but its study was confined to large and technology-based multinational firms (Kirschbaum, 2005). Van de Vrande *et al.* (2009) concluded that open innovation is also carried out by SMEs, as a means to overcome their liability of smallness and they do this mainly for market-related motives or to

Table 1: Motives for entering inter-firm alliances

| General motives for entering inter-firm alliances | Author(s) |
|--|--|
| To deal with competitive or vertical interdependency | Menard (2006) and Pfeffer and Nowak (1976) |
| To reach economies of scale, transfer of technology, to overcome governments' trade or investment barriers | Contractor and Lorange (1988) |
| Risk sharing | Contractor and Lorange (1988) and Pittway <i>et al.</i> (2004) |
| To escape from small numbers bargaining, establish a competitive advantage | Kogut (1988) |
| To attain efficiency, stability and legitimacy | Oliver (1990) |
| To exploit technological complementarity and reduce the time needed for innovation | Dodourova (2009), Hagedoorn (1993) and Pittway <i>et al.</i> (2004) |
| To reach specialisation and focus | Eisenhardt and Schoonhoven (1996) |
| To reduce uncertainty due to competitive market structures | Beverland and Bretherton (2001), Caves <i>et al.</i> (1975), |
| competitive technological structures | Dodourova (2009), Menard (2006) and Stuart (2000) |
| To combine resources | Dodourova (2009), Dyer and Singh (1998) and Pittway <i>et al.</i> (2004) |
| To invest in specific assets and reduce transaction costs | Dyer and Singh (1998) |
| To enter new markets | Contractor and Lorange (1988), Hagedoorn (1993) and Pittway <i>et al.</i> (2004) |
| To implement the transfer of knowledge | Beverland and Bretherton (2001), Dyer and Singh (1998) and Kogut (1988) |
| To speed up new product launch | Pittway <i>et al.</i> (2004) and Street and Cameron (2007) |
| To promote integrated marketing and distribution | Dodourova (2009) |
| To foster growth and profitability | Street and Cameron (2007) |
| To strengthen market position | Contractor and Lorange (1988) and Street and Cameron (2007) |
| Specific motives for SMEs | Author(s) |
| To reach economies of range and scale in order to overcome the liability of smallness | Gomes-Casseres (1997), Johanson (2008), Moller and Rajala (2007), Okamuro (2007) and Sakakibara (1997) |
| To raise R&D productivity through cost sharing and knowledge transfer | Johanson (2008) and Sakakibara (1997) |
| To innovate and learn, build market power, manage resource dependency | Franco (2003) and Johanson (2008) |
| To share risks and costs and strengthen production capacity | Franco (2003), Gnyawali and Park (2009), Moller and Rajala (2007) and Okamuro (2007) |
| To eliminate duplication of efforts | Okamuro (2007) and Sakakibara (1997) |
| To combine resources and exploit synergies | Moller and Rajala (2007) and Okamuro (2007) |
| To reach first mover advantages, create and manage brands and build distribution channels | Johanson (2008) and Moller and Rajala (2007) |
| To build social legitimacy in order to overcome the liabilities of newness and smallness | Lin <i>et al.</i> (2009) |

keep up with competitors which confirms the strong relationship between inter-firm alliances and market position previously pointed out. As stated by Pittway *et al.* (2004), the benefits associated with innovation through participation in inter-firm alliances are:

- Risk sharing
- Access to new markets and technologies
- Quicker access to the market when launching new products
- Combination of complementary resources and protection of property rights when it is not possible to sign complete contracts

Belderbos *et al.* (2006) studied cooperative R&D and concluded that its results change as a function of the partner and that knowledge exchanges are strong incentives to form inter-firm alliances. Alliances with customers result in tailor-made products and alliances with suppliers are more focused on cost reduction.

Franco (2003) studied cooperation among SMEs as a mechanism to innovate. Innovation and organizational learning are the first motive for entering inter-firm alliances among Portuguese SMEs. For Okamuro (2007), cooperation in R&D allows SMEs' access to external

resources, to achieve synergies and economies of scale and reduce risk and waste resulting from duplication of efforts.

Gnyawali and Park (2009) studied the correlation between technological innovation in SMEs and predisposition to cooperate with competitors. They found that resource utility is an important factor in forming inter-firm alliances due to similarity of use and target markets. At the same time, competitors face the same type of external pressures, namely technological change and the need for strong investment in R&D.

In short, innovation is a key issue for all types of firms but especially for SMEs. Constrained by their resource levels, SMEs cannot cope with intense competition and market change standing alone. Inter-firm alliances with different actors, namely; customers, suppliers and competitors, more than a choice is a must in order to face intense competition in the global marketplace.

MATERIALS AND METHODS

Sample: The target population was Portuguese SMEs, based on a list of firms generated by Informa D&B Portugal. SMEs were defined according to the European

Union (EU) definition based on number of employees and sales turnover. Micro companies (fewer than 10 employees) were not considered in the study. The principal business activities of SMEs in the sample are services (52.3%), manufacturing (43.8%) and agriculture (3.8%). While 62.6% of respondents were involved in alliances with other firms. Furthermore, 71.5% of the firms have between 10 and 49 employees, 63.5% are >20 years old and exports represent <5% of sales in 63.1% of firms, as a consequence of their focus on the domestic market. The most frequent types of inter-firm alliances are marketing and distribution agreements and outsourcing and informal agreements. Partners are primarily suppliers followed by customers and competitors. The main functional areas of agreement are commercial and marketing, followed by technical and production. R&D, quality and logistics are not so important.

Data collection: A total of 4.534 firms were contacted by email. Data collection was made in June and September, 2011 through an online questionnaire. This questionnaire was sent to the owner-manager or administrator of the previously selected firms. A pre-test was carried out in the presence of the respondents. After making the changes resulting from this process, a new pre-test was carried out online replicating the conditions of the questionnaire. The respondents of the pre-tests were excluded. A total of 260 usable completed questionnaires were returned, yielding a response rate of 5.73%. Note that 163 SMEs were involved in alliances with other firms.

The low response rate can be explained by the following reasons:

- Small firms may find it more difficult to reply to email questionnaires than bigger companies
- Small firms' managers have a limited amount of time to devote to these matters as well as limited human resources

For measurement, researchers used the Haase and Franco (2011) scale of importance with addition of the knowledge acquisition and transfer variable (Kogut, 1988). In this case, researchers used a 7 point Likert scale ranging from "not at all important" to "extremely important".

Data analysis: To reach the research goals, researchers used different statistical analyses. Researchers carried out a statistical descriptive analysis followed by exploratory factor analysis. Based on the latter method, researchers were able to reduce the number of variables and combine them in factors which can explain why SMEs enter inter-firm alliances. In order to check the acceptability of

the technique, researchers used the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett test of Sphericity. The internal consistency of the scale and the level of consistency between variables were measured by the Cronbach's alpha reliability analysis. In order to check the influence of firm characteristics on the three factors explaining the motives for entering inter-firm alliances, researchers used a one-way ANOVA test.

RESULTS AND DISCUSSION

Clustering of alliance formation factors: The mean values of the different motives for inter-firm alliances have higher values than the mean of the scale which is logical due to the fact that the respondents are companies that entered into some type of inter-firm alliance (Table 2).

The variables of the scale were reduced to three factors through exploratory factor analysis using principal component analysis as the extraction method and Varimax rotation with Kaiser Normalisation. Items with eigenvalues >1.0 were extracted (Table 3). Table 3 shows three factors of SME motives for alliance formation:

- Innovation, learning and knowledge acquisition and transfer
- Operational improvements and competitive advantage
- Entering new markets and market power

Next, researchers describe and explain in detail the factors mentioned above.

Table 2: Alliance formation motives (factor analysis)

| Variables | Mean | Factor loading |
|--|------|----------------|
| Loadings | | |
| Factor 1: Innovation, learning and knowledge acquisition and transfer | | |
| To improve innovation | 5.31 | 0.846 |
| To improve quality | 5.54 | 0.836 |
| Technology transfer | 4.63 | 0.724 |
| To foster the learning process | 5.04 | 0.759 |
| To share resources and competencies | 5.50 | 0.615 |
| Knowledge acquisition and transfer | 5.21 | 0.673 |
| Factor 2: Operational improvements and reaching competitive advantage | | |
| To create economies of scale | 5.23 | 0.688 |
| To reduce transaction costs | 5.16 | 0.799 |
| Risk sharing | 4.64 | 0.634 |
| To improve lead times | 5.25 | 0.728 |
| To explore and create synergies | 5.35 | 0.711 |
| To achieve competitive advantage | 5.77 | 0.539 |
| Factor 3: Entering new markets and market power | | |
| To enter new markets | 5.56 | 0.788 |
| To increase market share | 5.82 | 0.864 |
| To consolidate market position | 5.68 | 0.804 |

The mean for individual criteria is the average on a scale: 1) Not at all important; 2) Low importance; 3) Slightly important; 4) Neutral; 5) Moderately important; 6) Very important; 7) Extremely important; Varimax rotational procedure was used; Only values above 0.5 are presented

Table 3: Statistical values

| Variables | Factors | | |
|-----------------------------------|---------|--------|--------|
| | 1 | 2 | 3 |
| Eigenvalues | 6.998 | 1.736 | 1.344 |
| Percentage of explained variance | 26.093 | 21.366 | 19.728 |
| Percentage of cumulative variance | 26.093 | 47.459 | 67.188 |
| Cronbach's Alpha | 0.898 | 0.844 | 0.846 |

N = 163; KMO = 0.877; Bartlett's test, 1495.072; df = 105; Sig. Level, p = 0.000

Innovation, learning and knowledge acquisition and transfer: This factor appears as Portuguese SME's main motive for entering inter-firm alliances. This confirms that SMEs are aware of their endogenous limitations, translated into resource scarcity and liabilities of size, age and connectedness. In order to cope with challenges posed by changing competitive environments, consumer preferences and continuous innovation, the strategic alternative for SMEs is to combine their resources and skills with other firms and in doing so, be better prepared to compete in global markets offering new products, services or technologies (Dyer and Singh, 1998). These findings confirm the conclusions of Franco (2003) that innovation is the main factor explaining SME alliance formation and those of Shan *et al.* (1994) that innovation in SMEs is explained by cooperation alliances. At the same time and due to the fact that we live in a knowledge-based economy, knowledge acquisition and transfer from external sources appears as an absolute necessity for SMEs, as predicted by Belderbos *et al.* (2006).

Operational improvements and reaching competitive advantage: This factor translates SMEs' concerns about efficiency. It groups variables related to competitiveness factors, such as cost (economies of scale, transaction costs) and time (lead times). This factor deals with the execution issues faced by SMEs. Now-a-days, it is not enough to have good products. Firms must produce at competitive prices and deliver those products on time. These necessary conditions are not easy to achieve. They require investment in people and technology and building up internal capabilities and know-how.

Liabilities of size put pressure on SMEs to reach these goals. They are in a disadvantageous position due to financing difficulties and their capacity to attract young talent compared to big companies that can offer more attractive careers. These findings are in line with the conclusions of Contractor and Lorange (1988), Dyer and Singh (1998) and Okamuro (2007).

Entering new markets and market power: Competitive rivalry has never before reached the present levels. It is difficult to enter new markets and equally difficult to

Table 4: Sector of activity on alliance motives (ANOVA)

| Factors | Sector of activity | N | F | p-value |
|--------------------------|--------------------|----|-------|---------|
| Innovation | Manufacturing | 76 | 3.615 | 0.029 |
| Learning and knowledge | Services | 81 | | |
| Acquisition and transfer | Agriculture | 6 | | |

Table 5: Exports on alliance motives (ANOVA)

| Factors | Exports | N | F | p-value |
|-------------|---------------|----|-------|---------|
| Innovation | Do not export | 44 | 3.048 | 0.012 |
| Learning | Up-5% | 54 | | |
| Knowledge | 5-10% | 12 | | |
| Acquisition | 10-25% | 15 | | |
| Transfer | 25-50% | 8 | | |
| | >50% | 30 | | |

increase or defend market positions. This involves many resources of different kinds: Human, financial, marketing and technical. It puts a lot of pressure on SMEs' organizational resources and capabilities. Partnering is an obvious solution to all these challenges. Partnering may be the only solution due to the fact that standing alone, SMEs are not able to meet these challenges. Awareness of their strengths and weaknesses is a vital step for SMEs in dealing with their environment. These findings are in line with the conclusions of Contractor and Lorange (1988), Pittway *et al.* (2004) and Van de Vrande *et al.* (2009).

The influence of firm's characteristics on alliance formation motives: In order to check the influence of firm characteristics on the three factors that explain the motives for entering inter-firm alliances and despite the lack of normality, researchers used a one-way ANOVA test. In fact, the absolute values of kurtosis and skewness are well below 3 for skewness and 10 for kurtosis, meaning that researchers are not facing serious violation of the assumption of normality (Kline, 2005). Accordingly, researchers used parametric tests (Table 4 and 5). Based on the results, researchers used a Turkey test for multiple comparisons. Using one-way ANOVA test researchers concluded that sector of activity and exports have a statistically significant influence ($p < 0.05$) on the innovation, learning and knowledge acquisition and transfer factor in forming inter-firm alliances. Based on this, researchers applied a Tukey test of multiple comparisons and a statistically significant difference ($p < 0.05$) was found between manufacturing and services with the services mean being greater than that of manufacturing. A Tukey test was also applied to exports and researchers found a statistically significant difference ($p < 0.05$) between firms focused on the domestic market (exports <5% of total sales) and firms whose exports represent 10-25%. The former give more importance to the innovation, learning and knowledge acquisition and transfer factor than the latter.

These results point to the fact that in a service-driven economy SMEs are faced with greater challenges than manufacturing firms. The degree of innovation in the service sector is continuously growing leveraged by the advances in technology, mainly the internet. One possible explanation for the fact that firms focused on the domestic market are those attributing more importance to the innovation, learning, knowledge and acquisition factor is that those firms face a shrinking domestic market, suffer the competitive rivalry of subsidiaries of large multinational companies that export their best practices around the world and consequently raise the bar on the competitive level and therefore feel most need to innovate, learn and absorb knowledge from external sources.

LIMITATIONS

Finally, the study has some limitations which offer possibilities for future research. Firstly, the findings are taken from the Portuguese SME context which calls for caution when generalizing the outcomes. For this reason, further research is imperative to detect geographical differences. Secondly, this study is based on self-reported responses to a questionnaire which implies subjective components and may result in self-evaluation bias. Nevertheless, the combination of this and future studies will surely allow valuable comparisons and insights, leading to better understanding of inter-firm alliances as a mechanism to develop innovative capacity in the SME sector.

IMPLICATIONS

For SMEs, establishing inter-firm alliances has become a strategic alternative to deal with a complex and changing environment. Poor in resources and skills, SMEs have to cooperate in order to be able to respond to the challenges they face in current markets. Researchers could say to partner or to die. Alliance formation is a viable solution to be effective, efficient and competitive. The challenge faced by SMEs must be met by an organizational response from SME owners and managers. The soft skills needed to do so are very different from the hard skills they were used to in the past.

As a general conclusion, we may say that Portuguese SMEs are aware of the challenges they face. Two-thirds of the SMEs studied have entered some type of alliance in order to respond to different challenges. Those challenges are well-defined: To innovate and to be efficient and competitive. The SMEs giving most importance to inter-firm alliance formation are those

belonging to the service sector and those most focused on the domestic market. From the empirical results, researcher identified 3 factors to explain the motives for entering inter-firm alliances in the SME context:

- Innovation, learning and knowledge acquisition and transfer
- Operational improvements and reaching competitive advantage
- Entering new markets and improving and maintaining market share

Researchers have also confirmed the influence of firms' characteristics-sector of activity and exports-on alliance formation motives, mainly in innovation, learning and knowledge acquisition and transfer.

IMPLICATIONS

Furthermore, the study presents some implications and contributions. From the academic point of view, this study seeks to extend the findings of previous inter-firm alliance literature and more particularly the motives for SMEs entering into such agreements and especially in the service sector. More precisely, this study contributes to the study of the motives for alliance formation in several ways:

- It is an empirical study of Portuguese SMEs' alliance formation motives
- It studies different sectors, principally the service sector which has not been the focus of studies in this area
- It identifies and categorizes factors regarding how Portuguese SMEs evaluate alliance formation motives
- It measures the influence of firms' characteristics on SMEs' alliance formation motives

From the practical viewpoint, the study identifies several motives for SMEs entering inter-firm alliances. Their cognisance may help SMEs to engage more actively in inter-firm alliances. Thus, greater involvement in these types of alliances can stimulate SMEs' entrepreneurial cooperation with other firms in order to develop innovative capacity.

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