



The effect of intrapreneurship on corporate performance

The effect of
intrapreneurship

J. Augusto Felício

Management Department,

*School of Economics and Management (ISEG)/Technical University of Lisbon,
Lisbon, Portugal, and*

1717

Ricardo Rodrigues and Vítor R. Caldeirinha

Centre for Management Studies,

*School of Economics and Management (ISEG)/Technical University of Lisbon,
Lisbon, Portugal*

Abstract

Purpose – The purpose of this paper is to study the influence of intrapreneurship on the performance of companies.

Design/methodology/approach – The study develops and tests a theoretical model where the intrapreneurship is supported on the factors innovation, risk/uncertainty, risk/challenges, competitive energy, proactivity and autonomy, and the performance on the factors financial performance, growth and improvement and on the variable productivity. Based on a questionnaire, data from a sample of 217 medium-sized Portuguese companies were obtained. The study used the confirmatory analysis method based on structural equation modeling (SEM).

Findings – The intrapreneurship has a multidimensional structure. This model proves its influence on the growth and improvement and the importance and explanatory power of this latent variable.

Research limitations/implications – The techniques used to verify the effect of firm size and the age periods has not been sufficiently explored and the direct effect of latent variables of intrapreneurship on performance was not assessed. This work contributes to the theory highlighting the importance of factors in intrapreneurship and the influence of the context in the model.

Practical implications – It was verified that the intrapreneurship has obvious effects on the measures of qualitative performance – growth and improvement. This is helpful for researchers looking for appropriate performance measures and for intrapreneurs aiming to get support for their decisions and evaluate their performance.

Originality/value – This study considers the separation of the propensity for risk in two latent variables and includes the autonomy to characterize intrapreneurship and demonstrates the importance of qualitative measures of performance perceived in the perspective of medium and long term.

Keywords Intrapreneurship, Innovation, Initiative, Risk propensity, Competitive energy, Autonomy, Performance, Organizational performance, Portugal, Entrepreneurialism

Paper type Research paper

1. Introduction

Individual or organisation-based entrepreneurial action is a mechanism for business development of major economic importance through which society converts information



The authors would like to thank the participants in the Second Conference of the International Network of Business and Management Journals (INBAM) for their commentaries and contributions.

on products and services (Shane and Venkataraman, 2000). In the context of firms, the concept is reflected in the conditions of competitive advantage, which is why the study of intrapreneurship and its effect on performance is relevant. Sharma and Chrisman (1999) define intrapreneurship – also known as corporate entrepreneurship and corporate venturing – as the process whereby an individual or a group of individuals, in association with an existing organisation, create a new organisation or instigate renewal or innovation within that organisation. It concerns the adoption of processes to rejuvenate and revitalize firms through the search and creation of business, developing pioneering new products, services or processes to ensure revenue growth or profitability (Zahra, 1991; Zahra and Covin, 1995; Miles and Covin, 2002).

Intrapreneurship has a multidimensional structure, and the most frequently tested factors of intrapreneurship are risk taking, innovativeness, proactiveness, and competitive energy (Sharma and Chrisman, 1999; Dess *et al.*, 2003), yet their associations with corporate performance have not been sufficiently demonstrated (Zahra, 1991; Antoncic and Hisrich, 2004). Lumpkin and Dess (1996) added autonomy as a critical factor. Several authors consider it important to understand corporate entrepreneurship and its influence on the firm (Covin and Miles, 1999; Hornsby *et al.*, 2002). Therefore, research progress remains limited and fragmented, and is still in its theoretical exploratory stage (Wiseman and Skilton, 1999). As noted by Miles and Covin (2002), existing theoretical frameworks and management prescriptions have not been sufficient to understand intrapreneurship. Research has only provided a very general knowledge, adopting sometimes contradictory principles (Dess *et al.* 1999), which is why the knowledge of the factors that influence business performance and how they do so is still limited (Awang *et al.*, 2009). In many cases, it is a risky process or even harmful in the short term for a firm's financial performance (Zahra and Covin, 1995).

This study is supported on the theory of entrepreneurship, assuming the existence of companies with their own entrepreneurial spirit (McGinnis and Verney, 1987), which is reinforced by the fact that smaller firms are traditionally seen as a vehicle for entrepreneurship due to their contribution in terms of innovation and competitive power for economic growth and social and political stability (Stel, 2005). The study also adopts the resource based view theory (RBV), supported on the idea that successful companies maintain competitive advantages by allowing access to higher quality instruments and resources which are scarce and inimitable (Grant, 1991; Ray *et al.*, 2004).

The focus of the research is to understand the influence of intrapreneurship on the performance of companies and the objectives are to analyse the contribution of the factors for the characterisation of intrapreneurship and understand its influence on financial performance, productivity and growth and improvement.

The literature review and the research hypotheses are followed by the methodology, in which we highlight the research model, data collection, and instruments. The next section contains the empirical results, and a discussion of the major issues. Finally, we present the conclusions and implications for future research.

2. Literature review and hypotheses

Entrepreneurship is a difficult concept to identify, due to the lack of a conceptual framework to explain and predict the empirical phenomena whose main feature is business creation (Shane and Venkataraman, 2000). It refers to the process by which

individuals, acting independently or within organisations, pursue economic opportunities (Sharma and Chrisman, 1999; Shane and Venkataraman, 2000). Entrepreneurship became a term associated with any individual or group of individuals who create new combinations in their organisations (Lumpkin and Dess, 1996) and may be related to processes of corporate entrepreneurship or intrapreneurship (Covin and Slevin, 1991).

Intrapreneurship refers to the process carried out within the firm, regardless of size, leading to innovative new projects or activities, including the development of new products, services or other aspects (Miller, 1983; Antoncic and Hisrich, 2001).

Covin and Miles (1999) extend the activities of intrapreneurship to strategic renewal, scope redefinition, organisational rejuvenation and sustained regeneration. Authors tend to be inconsistent in the use of concepts that identify the phenomenon for study (Zahra, 1991) when using the terms corporate entrepreneurship or intrapreneurship (Kuratko *et al.*, 1990; Antoncic and Hisrich, 2001) and entrepreneurial orientation (Miller, 1983; Covin and Slevin, 1989; Lumpkin and Dess, 1996). Despite this ubiquity, Zahra *et al.* (1999) consider the measures adopted to capture the phenomenon very similar. Bosma and Levie (2010) and Zahra (1995) believe that intrapreneurship is a key factor for the development of companies which, according to Soriano and Martínez (2007), Ireland *et al.* (2009), and Alpkın *et al.* (2010), is influenced by many internal factors.

Kuratko *et al.* (1990) compare the entrepreneurial action of executive managers and employees within the firm with the behaviour of business owners, as a way of responding to the lack of innovation and competitiveness. This perspective regards the internal entrepreneur or intrapreneur as a key element of intrapreneurship having direct responsibility for turning an idea into profitable finished products or services through innovation and assertive risk-taking. The intrapreneur is someone who recognises the opportunities for change, evaluates them, exploits them, and believes that the exploration of a new path, different from previous practice, will succeed in achieving the objectives of the organisation.

When managers perceive that the institutional environment has a good tolerance for mistakes and risks emerging from innovation, they will be more open to change organisational strategic orientation models into entrepreneurial stances (Gómez-Haro *et al.*, 2011). Additionally, Simon *et al.* (2000) and Baron and Ensley (2006) find that entrepreneurs have a lower perception of risk and, for this reason, are more able to seize opportunities. However, according to Delmar and Shane (2003) and Gruber (2007) to use information in the evaluation of those opportunities and decision-making they are also able to plan.

Bruyat and Julien (2001) argue that the discovery, creation and exploration of opportunities for the production and sale of goods and services in an organized way can lead to entrepreneurial action. For example, in an existing firm, the creation of a new business through the introduction of a new product can also lead to value creation, which is in line with Shane and Venkataraman (2000), who identify the importance of the variation of business opportunities. Therefore, the phenomenon of intrapreneurship is considered a process that allows the revitalisation and improvement of corporate performance (Guth and Ginsberg, 1990; Zahra, 1991).

By assuming the existence of companies with entrepreneurial spirit, entrepreneurship theory considers intrapreneurship as a school within a theory (Cunningham and Lischeron, 1991) and as a way to revitalize and rejuvenate firms (Stopford and

Baden-Fuller, 1990). Its purpose, according to McGinnis and Verney (1987), is to harness the entrepreneurial spirit of small organisations and blend into the culture of the largest and most stable companies. Although significant theorizing has been proposed to clarify the domain of intrapreneurship, there is nevertheless a need to examine the relationship between intrapreneurship and firm performance (Dess *et al.*, 2003).

According to Hornsby *et al.* (2002), intrapreneurship focuses on revitalizing and strengthening firm competencies to acquire skills and innovative capabilities, which is why the roles they play in achieving a competitive advantage have gained interest (Long and Vickers-Koch, 1995; McGee and Finney, 1997). The main source of this advantage lies in the firm's resources, the aptitudes of employees and the capabilities identified with intangible resources (Grant, 1991; Day, 1994). Hence, the resource based view (RBV) considers intrapreneurship as a fundamental instrument for the accumulation, conversion and leveraging of resources for competitive purposes (Floyd and Wooldridge, 1999). The result is the focus on the development and utilisation of products, administrative innovation and the rejuvenation and redefinition of the firm or industry (Covin and Miles, 1999). Kakati (2003) found that corporate resources are the key to the survival and development of new projects and that successful entrepreneurs develop various corporate resources to support their business strategies and ensure firm development. In this respect, teams with a capacity for initiative and innovation are of paramount importance in the process of intrapreneurship (Bruyat and Julien, 2001; Alpkhan *et al.*, 2010). In this field, Wiklund and Shepherd (2003) claim that companies with strategic resources are better able to survive and develop.

On the assumption that the success of intrapreneurship is a result of deliberate actions (Van de Ven and Poole, 1995), entrepreneurial organisations focus strongly on innovation (Miller and Friesen, 1982), and thus greater entrepreneurial action leads to more development in the process of identifying and exploiting market opportunities (Shane and Venkataraman, 2000). In general, it is related to the strategy undertaken by top managers regarding the ability to combine proactiveness, risk-taking, innovativeness, competitive aggressiveness and autonomy (Miller, 1983; Covin and Slevin, 1991; Lumpkin and Dess, 1996; Covin and Miles, 1999; Dess *et al.*, 2003).

Some of the research in this field indicates that entrepreneurial companies can have all or some of the dimensions, and may vary in terms of the intensity and direction of the relationship (Lumpkin and Dess, 2001), which justifies the need to apply a one-dimensional and multidimensional approach. Within this framework, we formulate the following hypothesis:

- H1.* Intrapreneurship is explained by innovation, risk propensity in the face of uncertainty, risk propensity in the face of new challenges, competitive energy, proactivity and autonomy.

The extensive conceptual and empirical research on small and medium-sized companies has found, in the particular case of dynamic and hostile environments, that there is a positive relationship between intrapreneurship and corporate performance (Zahra, 1995; Antoncic and Hisrich, 2001; Rodsutti and Swierczek, 2002; Wiklund and Shepherd, 2003). There is evidence to suggest that, in developed economies, entrepreneurial activities within firms lead to successful performance (Zahra and Covin, 1995; Lumpkin and Dess, 2001; Hornsby *et al.*, 2002). However, Lumpkin and

Dess (1996), Kreiser *et al.* (2002) and Zahra and Nielsen (2002) find that each of the dimensions of intrapreneurship can vary and that the capacity for innovation and proactiveness has a positive relationship with sales growth. It appears that greater entrepreneurial activity can be considered as one of the most important sources of competitive advantage (Covin and Slevin, 1991).

The literature recognises that performance associated with corporate development is complex because it includes multi-dimensional views (Wiklund and Shepherd, 2003; Mintzberg, 2005). It can be analysed using objective measures (Chakravarthy, 1986; Cronin and Page, 1988) and subjective measures (Pelham and Wilson, 1996), but there is a relationship between the both (Venkatraman and Ramanujan, 1986; Kohli *et al.*, 1993). Performance is a composite measure that, among others, includes growth measures, financial indicators and internal performance (e.g. productivity) (Wiklund, 1999; Hult *et al.*, 2003). As a result of this complexity, several qualitative indicators can be used, including increased market share, increased sales or increased performance, which, in this study, is characterised as growth and improvement.

Keh *et al.* (2002) find that the propensity for risk involves the willingness to commit significant resources to exploit opportunities or lead to business strategies whose results can be highly uncertain. Taking the initiative or being proactive reflects the willingness to dominate competitors through a combination of proactive and aggressive actions, for example, the introduction of new products or services ahead of the competition and action that anticipates future demand to create change and adapt the environment. Innovation refers to the tendency of firms to participate in creative processes and test new ideas, which can result in the adoption of new production methods or new products or services for existing markets or new markets, a fact supported by the work of Damanpour (1991). Each of these factors affects the performance of the firm, in particular return on sales (ROS) and return on assets (ROA).

Innovation implies increased uncertainty and risks. However, various empirical studies report that innovation does not influence firm performance (Heunks, 1998) or find negative performance implications of innovation (McGee *et al.*, 1995; Vermeulen *et al.*, 2005), while others report positive effects (Guo *et al.*, 2005; Huarng and Yu, 2011). Some studies also suggest that the innovation-performance relationship is moderated (Li and Atuahene-Gima, 2001; Thornhill, 2006).

Individual action developed with commitment, dedication to tasks and personal energy (Trevelyan, 2008) characterises the internal initiative among entrepreneurs, and motivates their persistence in seeking and exploiting opportunities for innovation in relation to risks and uncertainties in a process generally filled with obstacles. To overcome these setbacks, besides other personal requirements, it becomes essential to have competitive power so that the results of entrepreneurial action are reflected in the performance of the firm.

The autonomy of action of internal entrepreneurs is another prominent factor in achieving results due to the need to make choices and have the resources to facilitate the process of creativity, allowing a response to adverse situations and the exploitation of opportunities. An illustrative case would be the financial resources and the conditions of decision-making, which include, among others, managing budgets and choosing individuals with appropriate skills to achieve the firm's objectives. Firm performance is influenced by the autonomy of internal entrepreneurs, which is reflected in process efficiency, increased activity and profitability.

- The following hypotheses are proposed within this framework:
- H2. Intrapreneurship positively influences the financial performance.
 - H3. Intrapreneurship positively influences the productivity of companies.
 - H4. Intrapreneurship positively influences the growth and improvement of companies.

3. Methodology

3.1 Research model

The research model (Figure 1) explores the relationship between intrapreneurship and firm performance.

The concept of intrapreneurship is explained by six factors identified in the literature: innovation (INNOVATION), risk/uncertainty (RISKUNCERT), risk/challenges (CHALLENGES), competitive energy (COMPETENERGY), proactiveness (PROACTIVE) and autonomy (AUTONOM), which adds up to a total of 21 variables. Performance uses the factor of financial performance, the variable productivity and the factor growth and improvement, in a total of eight variables.

3.2 Factors and variables

Innovation includes three variables, which are: new products (NPROD), new processes (NPROC) and new technologies (NTECN). It refers to the ability to introduce new things or novelties through experimentation and creative processes with the aim of developing new products, services and processes. According to Covin and Miles (1999), it corresponds to “the introduction of a new product, process, technology, system, technique, resource, or capacity for the firm or its markets”.

Risk propensity is analysed in terms of uncertainty (risk/uncertainty) and in terms of new challenges (risk/challenges). The factor risk/uncertainty comprises four variables: the entry of new competitors (COMPETITORS), reaction to sudden changes in agreements (AGREEMENTS), reaction to rapid changes in technological innovation (TECCHANGE) and reaction to difficulties in obtaining financing (FINANCING). From the perspective of risk/challenges, the four variables are: investment in new projects (NPROJ), profound innovations emerging in the market (DEEPINOV), decision to conquer new markets (NMARKET) and entry into new businesses (NBUSINESS). The willingness to risk refers to decision-making leading to action without full knowledge on certain issues that can influence the likely outcomes. It involves substantial commitments to resource allocation in order to carry out projects in an environment of uncertainty. Corporate risk-taking is conceptualised as the organisational orientation

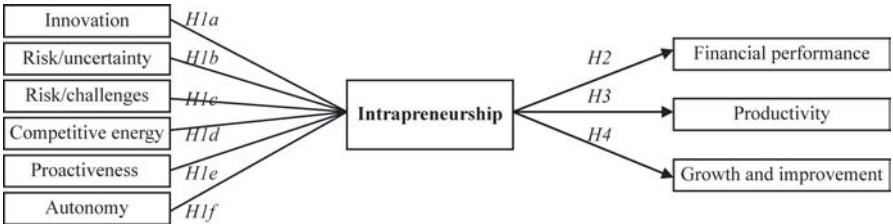


Figure 1.
Research model

to seek out new initiatives for the purpose of corporate profit and growth by tolerating the possible calculated losses (Keh *et al.*, 2002).

Competitive energy is also composed of four variables: level of personal commitment (WCOMMITMENT), more intense dedication to tasks (WDEDICATION), willingness to work overtime or after hours (EXTRA) and willingness to work on weekends and holidays (HOLIDAYW). It refers to the intense effort to outdo rivals in the industry. It is characterised by a strong response or combative stance in order to improve the position or dominate a threat in a competitive market. Competitive energy reflects the intensity of the companies' efforts to overcome their rivals in the industry, characterised by a combative stance and a vigorous response to the actions of competitors.

Proactiveness in guiding initiatives includes three variables: focus on growth and development (ATGROW), following leaders (ATIMITAT) and co-operation with other companies (ATCOOPER). It is associated with the characteristic of the market leaders that possess enough intuition to gauge opportunities in anticipation of future demand. Proactiveness is a work-related behaviour defined as self-starting and proactive that overcomes barriers to achieve a goal (Frese and Fay, 2001). The importance of proactiveness in the entrepreneurial process has been emphasised, while Lieberman and Montgomery (1988) have stressed the importance of the pioneering advantage (first-mover) to capitalize on a market opportunity. Proactiveness refers to the extent to which a company is a leader or a follower and is associated with an aggressive stance against competitors (Davis *et al.*, 1991). In intrapreneurship studies, proactiveness relates to pioneering (Covin and Slevin, 1991) and initiative-taking in pursuing new opportunities or entering new markets (Lumpkin and Dess, 1996).

Autonomy includes three variables: decision-making (DECISIONS), management of the allocated budget (BUDGET) and hiring people for new projects (RECRUIT). It refers to the independent action taken by an individual or group in order to put greater emphasis on a concept or a vision of business and defend it until its completion.

Financial performance is represented by three variables: return on sales (ROS), calculated by the ratio of the operating results from that year and the sales, return on assets (ROA), calculated by the ratio between net profit for the year and the average net assets, and the return on equity (ROE), calculated by the ratio between net profit for the year and the equity of the firm. ROA and ROE were used in the model as alternative measures.

Productivity (SALESWORK) is calculated via the relationship between the sales in the year and the average number of employees.

Growth and improvement (GROW) includes five variables: increased market share (MARKETSHARE), increased sales (SALES), increased size of the firm (SIZE), further development (in general) (PERFORMANCE) and increased performance (YEARPERFORM).

The age of the companies (AGE4) is classified into four periods: firms founded before the year 1974, founded in the period 1975-1984, 1985-1994 and 1995-2007.

The sectors (SECTOR) considered were heavy industry, transport, services, construction and light industry.

More information regarding the variables is presented in the Appendix – Table AI.

3.3 Data collection

To conduct the survey, we obtained a database of 3,906 medium-sized Portuguese companies (EU criteria) from Informa D&B (formerly Dun & Bradstreet), covering the following sectors: heavy industry, transport, services, construction and light industry. Besides detailed information regarding the size and sector of the companies, we also gained access to balance sheet data (2006 and 2007) that was not gathered through the survey.

The survey was conducted on-line in 2009. The managers received a first invitation to participate in the survey and, besides the e-mail reminders, a phone call was also made to randomly selected companies to confirm the reception of the e-mail, asking for collaboration from managers by replying to the survey.

The final sample contains 217 medium-sized companies (5.6 per cent) and reflects the Portuguese context.

3.4 Statistical instruments

The study used the confirmatory analysis method based on Structural Equation Modelling (SEM), which is suitable for this sample size. The comprehensive approach was employed to test hypotheses on relationships between observed and latent variables (Hoyle, 1995). The study used the analysis of moment structures (AMOS) program (Arbuckle, 2004) version 5.0 to estimate the measurement model and the structural model path coefficients of the relationships between the variables in the model.

The structural equation model examines the relationship between the latent variables, based on the model of Jöreskog and Sörbom (1993), with three matrix equations. The first is $\eta = \beta\eta + \Gamma\xi + \zeta$ where η is the vector of the endogenous latent constructs, such as GROW and FINANC, β and Γ are matrices of structural coefficients and ξ is the vector of exogenous constructs. ζ is the vector of errors of the conceptual model. The second equation is $y = \lambda_y\eta + \varepsilon$, where y is the vector of the endogenous observed variables as SALES and MARKETSHARE, λ_y is the matrix of structural coefficients for y , ε is the vector of errors of the measurement model and the covariance matrix of these errors is $\theta\varepsilon$. The third equation is $ix = \lambda_x\xi + \delta$ where x is the vector of the observed exogenous variables, as NPROD and NPROC, λ_x is a matrix of structural coefficients for x , ξ is the vector of exogenous latent constructs as INOVATION and INITIATIVE and δ is the vector of measurement errors of the model.

4. Empirical results

The first stage of data analysis consisted of the normality test of the variables, which was not rejected, followed by a descriptive analysis and correlations between variables. Subsequently, regression analysis was performed for each dependent variable with all independent variables to assess the factors and constructs involved in explaining the performance of the firms. Taking into account the existence of latent variables, we used the SEM technique (Structural Equation Modelling) and first we prepared the measurement model and then the general model of confirmation. We observed a lack of adequate results, as some latent variables did not verify the assumptions of internal validity, and thus we proceeded to attempt to explain the endogenous latent variables based on the factors considered, again without success.

Given this situation, we performed an exploratory factor analysis, looking to regroup the factors in new latent variables, and then determine their level of internal

validity and meaning. Later we returned to the SEM measurement model results and obtained more appropriate and meaningful results, and proceeded with a confirmatory analysis of the model only for the latent variable of performance that achieved significant results (GROW).

4.1 Descriptive statistics

Following the descriptive statistics, the normality tests support the assumption of normality needed to proceed. The Pearson correlations (Appendix – Table AII) were also computed to analyse the intensity of relationships and how the variables were grouped.

4.2 The measurement model

Based on the hypotheses, supported in theory and represented in the research model (Figure 1), we began the analysis by validating the internal consistency of the constructs reported for intrapreneurship, derived from 21 variables identified in the Appendix – Table AI. Using appropriate goodness of fit indices (Hair *et al.*, 2010), we found that the initial constructs did not have an adequate fit: $\chi^2/\text{df} = 1.930$; NFI = 0.768; CFI = 0.84; RMSEA = 0.087.

Consequently, we adjusted the variables of the constructs, which led to the exclusion of some variables and, as a result, obtained the following goodness of fit indices: $\chi^2/\text{df} = 2.632$; NFI = 0.849; CFI = 0.92; RMSEA = 0.066, which is considered appropriate. The Cronbach's Alpha analysis also shows its internal validity (Table I).

The different constructs that reflect the intrapreneurship factor have the following variables: INNOVATION ($\beta = 0.81$) – NPROD, NPROC and NTECN; RISKUNCERT ($\beta = 0.70$) – COMPETITORS, AGREEMENTS, TECCHANGE and FINANCING; RISKCHALLENGES ($\beta = 0.93$) – NPROJ, DEEPINOV and NMARKET; COMPETENERGY ($\beta = 0.51$) – WCOMMITMENT, WDEDICATION and EXTRAW; PROACTIVE ($\beta = 1.04$) – ATGROW and ATCOOPER; and AUTONOM ($\beta = 0.58$) – DECISIONS, BUDGET and RECRUIT. The correlations of the constructs are presented in Table II.

We applied a similar technique for the performance construct. Initially, the possibility of an aggregator construct was assumed, with all the variables and constructs. The different constructs that reflect the performance factor have the following variables: FINANC ($\beta = 0.21$) – ROS and ROA; GROW ($\beta = 0.85$) – MARKETSHARE, SALES, SIZE, PERFORMANCE, and YEARPERFORM. The

	Initial solution		Adjusted solution	
	Number of variables	Cronbach Alpha	Number of variables	Cronbach Alpha
INNOVATION	3	0.715	3	0.715
RISKUNCERT	4	0.731	4	0.731
RISKCHALLENGES	4	0.774	3	0.742
COMPETENERGY	4	0.872	3	0.858
PROACTIVE	3	0.592	2	0.505
AUTONOM	3	0.737	3	0.737

Table I.
Internal validity of the
constructs

observed variable SALESWORK ($\beta = 0.20$) also reflect the performance. The correlations between the constructs are presented in Table III.

The goodness of fit indices ($\chi^2/\text{df} = 10.76$, NFI = 0.789, CFI = 0.803, RMSEA = 0.213) reject the adequacy of the construct PERFORMANCE. In the specific case of the performance construct GROW, it was necessary to eliminate one variable and thus the construct was made up of the following variables: MARKETSHARE, SALES, SIZE and PERFORMANCE, and the corresponding indices of goodness of fit are $\chi^2/\text{df} = 1.479$, NFI = 0.880, CFI = 0.957 and RMSEA = 0.047.

Subsequent to the analysis of the internal consistency of the constructs, we considered the model that aims to verify the existence of the influence of intrapreneurship on business performance. In line with the hypotheses, models were individualized to financial performance (H2), productivity (H3) and the factor GROW (H4). Only in this last case, using the same indices of goodness of fit, is the model satisfactorily accurate: $\chi^2/\text{df} = 1.854$, NFI = 0.834, CFI = 0.915, RMSEA = 0.063. The model has an $R^2 = 0.27$. The relationships between variables and factors are shown in Figure 2.

The age and sectors of firms were assumed as control variables and, using ANOVA, we verified that there were no significant effects. This was done through the analysis of the validity of the comparison between the mean for age groups of firms with significant results: BUDGET, RECRUIT and SIZE. Similarly there was a valid comparison between the averages of groups of firms by sector and the variables with significant results were NTECN, RECRUIT and SALESWORK.

5. Discussion

The internal entrepreneurship that organisations rely on for their development is strongly justified by factors of innovation, risk propensity, competitive energy, proactiveness, and autonomy, in line with Alpkán *et al.* (2010) and Ireland *et al.* (2009), who reported that intrapreneurship is influenced by many internal factors. This study suggests that the initiative for growth or co-operation ($\beta = 1.03$), the propensity to take risks with new projects or new markets ($\beta = 0.93$) and innovations based on new

Table II.
Implied (for all variables)
correlations
(intrapreneurship)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) INTRAPRENEURSHIP	1						
(2) AUTONOM	0.577	1					
(3) RISKUNCERT	0.704	0.406	1				
(4) PROACTIVE	1.008	0.582	0.71	1			
(5) RISKCHALLENGES	0.933	0.539	0.657	0.941	1		
(6) INNOVATION	0.813	0.469	0.572	0.819	0.758	1	
(7) COMPETENERGY	0.509	0.294	0.359	0.514	0.475	0.414	1

Table III.
Implied correlations
(performance)

	(1)	(2)	(3)
(1) PERFORMANCE	1		
(2) GROW	0.85	1	
(3) FINANC	0.212	0.18	1

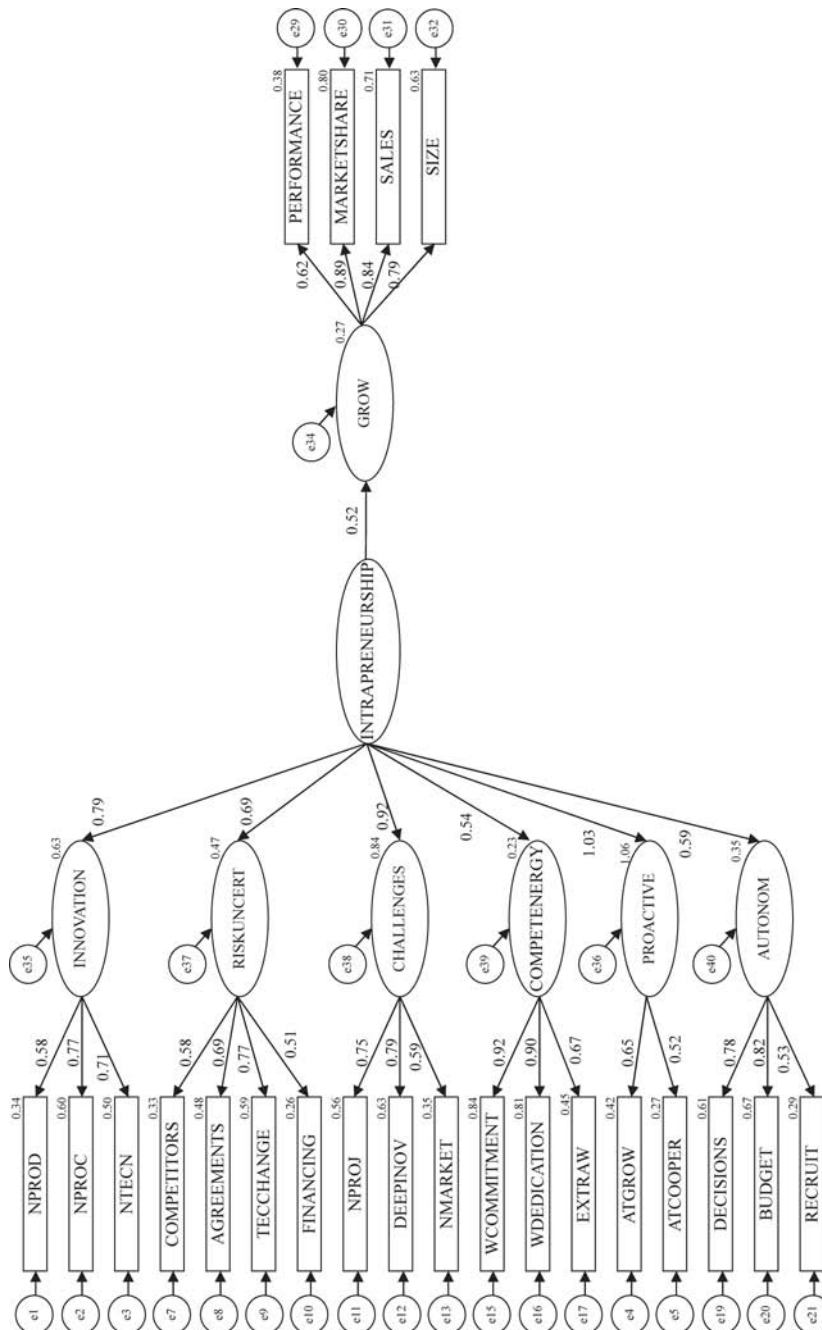


Figure 2.
Final SEM model

products and new technologies or processes ($\beta = 0.81$) is connected to the ability to withstand the uncertainty of abrupt changes or unforeseen difficulties ($\beta = 0.70$), the level of autonomy of management and other staff for decision-making ($\beta = 0.58$) and energy in their commitment and dedication to tasks ($\beta = 0.51$).

The empirical evaluation shows that the capacity for initiative and innovation of the technical staff and other personnel throughout the firm, besides personal intrinsic conditions, requires there to be a natural tendency for internal entrepreneurs to accept the risks associated with the challenges of creative effort to remain competitive and for successful projects to be aware of the risks of uncertainty of the results and be profitable.

We can see the importance of motivation and personal commitment and the need to have substantial energy capacity for intense and continuous, step by step, development of these projects based on competitiveness and decision-making autonomy. In this study, there is a very strong correlation between the initiative of intrapreneurs (Richard *et al.*, 2004) in light of their creativity and propensity for the challenges, which confirms the theory. Covin and Miles (1999) and Dess *et al.* (2003) identify these three factors with entrepreneurial orientation, which is also related to competitive intensity. However, intrapreneurship is associated with other features (but with less intensity): the tendency to take risks, devoting greater energy derived from personal commitment, and having autonomy. In this case, the theory still does not provide consistent evidence, although some authors support the importance of autonomy (Dess *et al.* 2003; Antoncic and Hisrich, 2004) and competitive energy.

This research provides a better understanding of the reasons why the literature is not conclusive. In the cases of risk/uncertainty, competitive energy and autonomy the correlations were weaker, particularly for competitive energy, which means that these factors are less important for intrapreneurship. The analysis considers medium-sized enterprises although several authors (Miller, 1983; Antoncic and Hisrich, 2001) consider intrapreneurship regardless of size, while others (Hornsby *et al.* 2002; Dess *et al.*, 2003) see it as a solution to revitalize or rejuvenate business, which is in line with the results obtained. Staff and other personnel pertaining to the firm ensure the conditions for intrapreneurship, including the propensity for risk or creativity via their skills, which is consonant with the resource based view (Kakati, 2003; Wiklund and Shepherd, 2003). *H1* is thus confirmed.

It appears that performance is strongly related to the growth and improvement factor [GROW ($\beta = 0.85$)] as a reflection of the commitment of firms to an increase in sales and to ensure their development and increased performance. With regard to the factor of financial performance [FINANC ($\beta = 0.21$)], measured by the profitability of the firm (ROA) and return on sales (ROS) and productivity [PRODUCTIVITY ($\beta = 0.20$)] there is little or no relation with performance. This may be because a firm that emphasises intrapreneurship is much more focused on developing initiatives for new products or new technologies, which are usually very demanding in terms of investment, and the repercussions for the firm's medium and long term future, and pay less attention to productivity gains in the short term or maximizing profitability. This is in line with the observation of Zahra and Covin (1995), who highlight the fact that this is a risky process in the short term. On the other hand, the investment effort is reflected in the level of financial leverage and in this sense it would be interesting to evaluate the effect associated with the intensity of intrapreneurship. The adoption of the GROW factor is supported in the literature as a composite measure (Wiklund, 1999;

Hult *et al.*, 2003). This factor is associated with the development of business which, in line with Chakravarthy (1986) and Cronin and Page (1988), is based on the exploitation of opportunities, with repercussions for various indicators.

This study confirms that intrapreneurship influences performance ($\beta = 0.52$), and is therefore an important contribution to the theory, e.g. Zahra (1995), Rodsutti and Swierczek (2002) and Wiklund and Shepherd (2003). Intrapreneurship is identified by all factors that are present in the initial model: innovation, risk/uncertainty, risk/challenges, competitive energy, proactiveness, and autonomy, but performance is identified by growth and improvement (GROW). This relationship is positive, thus confirming *H4*.

The literature confirms the role of intrapreneurship and in particular the skills of entrepreneurs in the revitalisation of performance (Zahra, 1991; Hornsby *et al.*, 2002; Awang *et al.*, 2009). We conclude, however, that only some of the performance measures are influenced by intrapreneurship, which is in line with Wiklund and Shepherd (2003) and Mintzberg (2005), who observe the enormously complex nature and multidimensionality of performance and advise the choice of appropriate indicators, which supports the rejection of *H2* and *H3*. This study confirms that the factors that make up intrapreneurship have differing weights and varying importance, in relative terms, which of course will have different effects in relation to performance, an observation in line with studies by Lumpkin and Dess (1996), Kreiser *et al.* (2002) and Zahra and Nielsen (2002), who refer to the fact that the factors vary in their impact.

6. Conclusions and implications

This study shows that intrapreneurship influences the performance of firms, contributing to a deeper understanding of the importance of intrapreneurship in the context of entrepreneurship and the resource-based view theories.

The multidimensional structure of intrapreneurship is confirmed and it is influenced by the important role of proactivity and innovative action, associated with the challenge to the intrapreneurs in their propensity for risk. Within the framework of intrapreneurship, the autonomy granted to the entrepreneurs, their competitive energy and the risk of uncertainty associated with their initiative and capacity for innovation have a lower importance.

This work highlights the importance of the factor growth and improvement, of a qualitative nature, to reflect the multidimensional effect of intrapreneurship. The proactivity and innovation action of entrepreneurs project the effects in the long term aiming to ensure the development of companies.

Using different performance measures, within its multidimensionality and complexity, this model proves the importance and explanatory power of the latent variable growth and improvement.

The conclusions to be drawn from this study and the importance of the results should contribute to entrepreneurship theory and the resource based view (RBV).

The confirmation of the relationship between intrapreneurship and performance based on medium-sized Portuguese enterprises allows it to be applied to other contexts and study its importance in the case of small businesses and large companies.

This article has some limitations. The techniques used to verify the effect of firm size and age periods has not been sufficiently explored in the model and should be addressed in future studies. The direct effect of the intrapreneurship latent variables on performance is also not included in this research.

References

- Alpkan, L., Bulut, C., Gunday, G., Ulusoy, G. and Kilic, K. (2010), "Organizational support for intrapreneurship and its interaction with human capital to enhance innovative performance", *Management Decision*, Vol. 48 No. 5, pp. 732-55.
- Antonicic, B. and Hisrich, R.D. (2001), "Intrapreneurship: construct refinement and crosscultural validation", *Journal of Business Venturing*, Vol. 16 No. 5, pp. 495-527.
- Antonicic, B. and Hisrich, R.D. (2004), "Corporate entrepreneurship contingencies and organizational wealth creation", *Journal of Management Development*, Vol. 23 No. 6, pp. 518-50.
- Arbuckle, J.L. (2004), *Amos 5.0 User's Guide*, Small Waters Corporation, Chicago, IL.
- Awang, A., Khalid, S.A., Yusof, A.A., Kassim, K.M., Ismail, M., Zain, R.S. and Madar, A.R. (2009), "Entrepreneurial orientation and performance relations of Malaysian bumiputera SMEs: the impact of some perceived environmental factors", *International Journal of Business and Management*, Vol. 4 No. 9, pp. 84-96.
- Baron, R.A. and Ensley, M.D. (2006), "Opportunity recognition as the detection of meaningful patterns: evidence from comparisons of novice and experienced entrepreneurs", *Management Science*, Vol. 52 No. 9, pp. 1331-44.
- Bosma, N. and Levie, J. (2010), *Global Entrepreneurship Monitor: 2009 Global Report*, Global Entrepreneurship Research Association, Boston, MA.
- Bruyat, C. and Julien, P.A. (2001), "Defining the field of research in entrepreneurship", *Journal of Business Venturing*, Vol. 16 No. 2, pp. 165-80.
- Chakravarthy, B. (1986), "Measuring strategic performance", *Strategic Management Journal*, Vol. 7, pp. 437-58.
- Covin, J.G. and Miles, M.P. (1999), "Corporate entrepreneurship and the pursuit of competitive advantage", *Entrepreneurship: Theory & Practice*, Vol. 23 No. 3, pp. 47-63.
- Covin, J.G. and Slevin, D.P. (1989), "Empirical relationships among strategic posture environmental context variables, and new venture performance", in Bockhaus, R. *et al.* (Eds), *Frontiers of Entrepreneurship Research*, Babson College, Wellesley, MA, pp. 370-82.
- Covin, J.G. and Slevin, D.P. (1991), "A conceptual model of entrepreneurship as firm behaviour", *Entrepreneurship Theory and Practice*, Vol. 16 No. 1, pp. 7-25.
- Cronin, J. and Page, T. (1988), "An examination of the relative impact of growth strategies on profit performance", *European Journal of Marketing*, Vol. 22 No. 1, pp. 57-68.
- Cunningham, J.B. and Lischeron, J. (1991), "Defining entrepreneurship", *Journal of Small Business Management*, Vol. 29, pp. 45-61.
- Damanpour, F. (1991), "Organizational innovation: a meta-analysis of effects of determinants and moderators", *Academy of Management Journal*, Vol. 34 No. 3, pp. 555-90.
- Davis, D., Morris, M. and Allen, J. (1991), "Perceived environmental turbulence and its effect on selected entrepreneurship, marketing and organizational characteristics in industrial firms", *Journal of the Academy of Marketing Science*, Vol. 19 No. 4, pp. 43-51.
- Day, D.L. (1994), "Raising radicals", *Organization Science*, Vol. 5 No. 2, pp. 148-72.
- Delmar, F. and Shane, S. (2003), "Does business planning facilitate the development of new ventures?", *Strategic Management Journal*, Vol. 24 No. 12, pp. 1165-85.
- Dess, G.G., Lumpkin, G.T. and McGee, J.E. (1999), "Linking corporate entrepreneurship to strategy, structure, and process: suggested research directions", *Entrepreneurship Theory and Practice*, Vol. 23, pp. 85-102.

-
- Dess, G.G., Ireland, R.D., Zahra, S.A., Floyd, S.W., Janney, J.J. and Lane, P.J. (2003), "Emerging issues in corporate entrepreneurship", *Journal of Management*, Vol. 29 No. 3, pp. 351-78.
- Floyd, S.W. and Wooldridge, B. (1999), "Knowledge creation and social networks in corporate entrepreneurship: the renewal of organizational capability", *Entrepreneurship: Theory & Practice*, Vol. 23 No. 3, pp. 123-43.
- Frese, M. and Fay, D. (2001), "Personal initiative: a concept for work in the 21st century", *Research in Organizational Behavior*, Vol. 23, pp. 133-88.
- Gómez-Haro, S., Aragón-Correa, J.A. and Córdon-Pozo, E. (2011), "Differentiating the effects of the institutional environment on corporate entrepreneurship", *Management Decision*, Vol. 49 No. 10, pp. 1677-93.
- Grant, R.M. (1991), "The resource-based theory of competitive advantage: implications for strategy formulation", *California Management Review*, Vol. 33, pp. 114-35.
- Gruber, M. (2007), "Uncovering the value of planning in new venture creation: a process and contingency perspective", *Journal of Business Venturing*, Vol. 22 No. 6, pp. 782-807.
- Guo, R.-J., Baruch, L. and Zhou, N. (2005), "The valuation of biotech IPOs", *Journal of Accounting, Auditing & Finance*, Vol. 20 No. 4, pp. 423-59.
- Guth, W.D. and Ginsberg, A. (1990), "Guest editors' introduction: corporate entrepreneurship", *Strategic Management Journal*, Vol. 11, special issue, pp. 5-15.
- Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010), *Multivariate Data Analysis*, Pearson Education, Upper Saddle River, NJ.
- Heunks, F.J. (1998), "Innovation, creativity and success", *Small Business Economics*, Vol. 10 No. 3, pp. 263-72.
- Hornsby, J.S., Kuratko, D.F. and Zahra, S.A. (2002), "Middle managers' perception of the internal environment for corporate entrepreneurship: assessing a measurement scale", *Journal of Business Venturing*, Vol. 17, pp. 253-73.
- Hoyle, R.H. (1995), *Structural Equation Modeling*, SAGE Publications, Thousand Oaks, CA.
- Huang, K.-H. and Yu, T.H.-K. (2011), "Entrepreneurship, process innovation and value creation by a non-profit SME", *Management Decision*, Vol. 49 No. 2, pp. 284-96.
- Hult, G., Snow, C. and Kandemir, R. (2003), "The role of entrepreneurship in building cultural competitiveness in different organizational types", *Journal of Management*, Vol. 29 No. 3, pp. 401-26.
- Ireland, R.D., Covin, J.G. and Kuratko, D.F. (2009), "Conceptualizing corporate entrepreneurship strategy", *Entrepreneurship Theory and Practice*, Vol. 33 No. 1, pp. 19-46.
- Jöreskog, K. and Sörbom, D. (1993), *LISREL 8: Structural Equation Modeling with the SIMPLIS Command Language*, Scientific Software International Inc, Chicago, IL.
- Kakati, M. (2003), "Success criteria in high-tech new ventures", *Techovation*, Vol. 23, pp. 447-57.
- Keh, H.T., Foo, M.D. and Lim, B.C. (2002), "Opportunity evaluation under risky conditions: the cognitive processes of entrepreneurs", *Entrepreneurship Theory and Practice*, Vol. 27 No. 2, pp. 125-49.
- Kohli, A., Jaworski, B. and Kumar, A. (1993), "MARKOR: a measure of market orientation", *Journal of Business Venturing*, Vol. 12 No. 3, pp. 213-24.
- Kreiser, P.M., Marino, L.D. and Weaver, K.M. (2002), "Assessing the psychometric properties of the entrepreneurial scale: a multi-country analysis", *Entrepreneurship Theory and Practice*, Vol. 26, pp. 71-92.

- Kuratko, D.F., Montagno, R.V. and Hornsby, J.S. (1990), "Developing an intrapreneurial assessment instrument for effective corporate entrepreneurial environment", *Strategic Management Journal*, Vol. 11 No. 5, pp. 49-58.
- Li, H. and Atuahene-Gima, K. (2001), "Product innovation strategy and the performance of new technology ventures in China", *Academy of Management Journal*, Vol. 44 No. 6, pp. 1123-34.
- Lieberman, M. and Montgomery, D. (1988), "First mover advantage", *Strategic Management Journal*, Vol. 9, pp. 41-58.
- Long, C. and Vickers-Koch, M. (1995), "Using core capabilities to create competitive advantage", *Organizational Dynamics*, Vol. 24 No. 1, pp. 7-22.
- Lumpkin, G. and Dess, G. (1996), "Clarifying the entrepreneurial orientation construct and linking it to performance", *Academy of Management Review*, Vol. 21 No. 1, pp. 135-72.
- Lumpkin, G. and Dess, G. (2001), "Linking two dimensions of entrepreneurial orientation to firm performance: the moderating role of environment and industry life cycle", *Journal of Business Venturing*, Vol. 16, pp. 429-51.
- McGee, J.E. and Finney, J.B. (1997), "Competing against retailing giants: a look at the importance of distinctive marketing competencies", *Journal of Business and Entrepreneurship*, Vol. 9 No. 1, pp. 59-70.
- McGee, J.E., Dowling, M.J. and Megginson, W.L. (1995), "Cooperative strategy and new venture performance: the role of business strategy and management experience", *Strategic Management Journal*, Vol. 16 No. 7, pp. 565-80.
- McGinnis, M. and Verney, T. (1987), "Innovation management and intrapreneurship", *Advanced Management Journal*, Vol. 52 No. 3, pp. 19-23.
- Miles, M.P. and Covin, J.G. (2002), "Exploring the practice of corporate venturing: some common forms and their organizational implications", *Entrepreneurship: Theory and Practice*, Vol. 26 No. 3, pp. 21-40.
- Miller, D. (1983), "The correlates of entrepreneurship in three types of firms", *Management Science*, Vol. 29, pp. 770-91.
- Miller, D. and Friesen, P. (1982), "Innovation in conservative and entrepreneurial firms: two models of strategic momentum", *Strategic Management Journal*, Vol. 3 No. 1, pp. 1-26.
- Mintzberg, H. (2005), "Developing theory about the development the theory", in Hit, M. and Smith, K. (Eds), *Great Minds in Management*, Oxford University Press, Oxford.
- Pelham, A. and Wilson, D. (1996), "A longitudinal study of the impact of market structure, firm structure, strategy, and market orientation culture on dimensions of small-firm performance", *Journal of the Academy of Marketing Science*, Vol. 24 No. 1, pp. 27-43.
- Ray, G., Barney, J.B. and Muhanna, W.A. (2004), "Capabilities, business processes, and competitive advantage: choosing the dependent variable in empirical tests of the resource-based view", *Strategic Management Journal*, Vol. 25 No. 1, pp. 23-37.
- Richard, O.C., Barnett, T., Dwyer, S. and Chadwick, K. (2004), "Cultural diversity in management, firm performance, and the moderating role of entrepreneurial orientation dimensions", *Academy of Management Journal*, Vol. 32 No. 4, pp. 745-72.
- Rodsutti, M.C. and Swierczek, F.W. (2002), "Leadership and organizational effectiveness in multinational enterprises in southeast Asia", *Leadership & Organization Development Journal*, Vol. 23 Nos 5/6, pp. 250-9.
- Shane, S. and Venkataraman, S. (2000), "The promise of entrepreneurship as a field of research", *Academy of Management Review*, Vol. 25 No. 1, pp. 217-27.

-
- Sharma, P. and Chrisman, J.J. (1999), "Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship", *Entrepreneurship Theory and Practice*, Vol. 23 No. 3, pp. 11-27.
- Simon, M., Houghton, S.M. and Aquino, K. (2000), "Cognitive biases, risk perception, and venture formation: how individuals decide to start companies", *Journal of Business Venturing*, Vol. 15 No. 2, pp. 113-34.
- Soriano, D.R. and Martínez, J.M. (2007), "Transmitting the entrepreneurial spirit to the work team in SMEs: the importance of leadership", *Management Decision*, Vol. 45 No. 7, pp. 1102-22.
- Stel, A. (2005), "Compendia: harmonizing business ownership data across countries and over time", *International Entrepreneurship and Management Journal*, Vol. 1, pp. 105-23.
- Stopford, J.M. and Baden-Fuller, C. (1990), "Corporate rejuvenation", *Journal of Management Studies*, Vol. 27 No. 4, pp. 399-415.
- Thornhill, S. (2006), "Knowledge, innovation and firm performance in high- and low-technology regimes", *Journal of Business Venturing*, Vol. 21 No. 5, pp. 687-703.
- Trevelyan, R. (2008), "Optimism, overconfidence and entrepreneurial activity", *Management Decision*, Vol. 46 No. 7, pp. 986-1001.
- Van de Ven, A.H. and Poole, M.S. (1995), "Explaining development and change in organizations", *Academy of Management Review*, Vol. 20 No. 3, pp. 510-40.
- Venkatraman, N. and Ramanujan, V. (1986), "Measurement of business performance in strategy research: a comparison of approaches", *Academy of Management Review*, Vol. 11 No. 4, pp. 801-81.
- Vermeulen, P.A.M., De Jong, J.P.J. and O'Shaughnessy, K.C. (2005), "Identifying key determinants for new product introductions and firm performance in small service firms", *Service Industry Journal*, Vol. 25 No. 5, pp. 625-40.
- Wiklund, J. (1999), "The sustainability of the entrepreneurial orientation-performance relationship", *Entrepreneurship Theory and Practice*, Vol. 24 No. 1, pp. 37-49.
- Wiklund, J. and Shepherd, D. (2003), "Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized business", *Strategic Management Journal*, Vol. 24 No. 13, pp. 1307-14.
- Wiseman, R. and Skilton, P. (1999), "Divisions and differences: exploring publication preferences and productivity across management subfields", *Journal of Management Inquiry*, Vol. 8 No. 3, pp. 299-321.
- Zahra, A. (1991), "Predictors and financial outcomes of corporate entrepreneurship: an exploratory study", *Journal of Business Venturing*, Vol. 6 No. 4, pp. 259-86.
- Zahra, S. (1995), "Corporate entrepreneurship and financial performance: the case of management leveraged buyouts", *Journal of Business Venturing*, Vol. 10, pp. 225-47.
- Zahra, S.A. and Covin, J.G. (1995), "Contextual influences on the corporate entrepreneurship performance relationship in established firms: a longitudinal analysis", *Journal of Business Venturing*, Vol. 10 No. 1, pp. 43-58.
- Zahra, S.A. and Nielsen, A.P. (2002), "Sources of capabilities, integration and technology commercialization", *Strategic Management Journal*, Vol. 23, pp. 377-98.
- Zahra, S.A., Kuratko, D.F. and Jennings, D.F. (1999), "Entrepreneurship and the acquisition of dynamic organizational capabilities", *Entrepreneurship Theory and Practice*, Vol. 23, pp. 5-10.

Factors	Variables	Description
INNOVATION	NPROD	Innovation developed by the firm over the past two years: new products (1 – very little to 5 – very high)
	NPROC	Innovation developed by the firm over the past two years: new processes (1 – very little to 5 – very high)
	NTECN	Innovation developed by the firm over the past two years: new technologies (1 – very little to 5 – very high)
RISKUNCERT	COMPETITORS	Attitude in the face of unexpected decisions in the last two years: entry of new competitors (1 – very weak to 5 – very high/strong)
	AGREEMENTS	Attitude in the face of unexpected decisions in the last two years: response to rapid changes in agreements (1 – very weak to 5 – very high/strong)
	TECCHANGE	Attitude in the face of unexpected decisions in the last two years: reactions to sudden changes in technological innovation (1 – very weak to 5 – very high/strong)
	FINANCING	Attitude in the face of unexpected decisions in the last two years: a reaction to difficulties in obtaining financing (1 – very weak to 5 – very high/strong)
CHALLENGES	NPROJ	Attitude to challenges over the past two years: investment in new projects (1 – very weak to 5 – very high/strong)
	DEEPINOV	Attitude to challenges over the past two years: profound innovations (1 – very weak to 5 – very high/strong)
	NMARKET	Attitude to challenges over the past two years: conquest of new markets (1 – very weak to 5 – very high/strong)
	NBUSINESS	Attitude to challenges over the past two years: entry into new businesses (1 – very weak to 5 – very high/strong)
COMPETENERGY	WCOMMITMENT	Attitude of the staff: greater personal commitment (1 – very weak to 5 – very high)
	WDEDICATION	Attitude of the staff: dedication to tasks (1 – very weak to 5 – very high)
	EXTRAW	Attitude of the staff: working overtime (1 – very weak to 5 – very high)
	HOLIDAYW	Attitude of the staff: working on weekends and holidays (1 – very weak to 5 – very high)
PROACTIVE	GROW	The firm's attitude towards initiative in the face of competition over the last two years: betting on growth (1 – very little to 5 – very high)
	COOPER	The firm's attitude towards initiative in the face of competition over the last two years: cooperation (1 – very little to 5 – very high)

Table AI.
Variables

(continued)

Factors	Variables	Description
AUTONOM	IMITAT	The firm's attitude towards initiative in the face of competition over the last two years: following or imitating the leaders (1 – very little to 5 – very high)
	DECISIONS	Degree of autonomy and initiative of the staff: decision-making (1 – very weak to 5 – very high)
	BUDGET	Degree of autonomy and initiative of the staff: managing the allocated budget (1 – very weak to 5 – very high)
GROW	RECRUIT	Degree of autonomy and initiative of the staff: Hiring people (1 – very weak to 5 – very high)
	MARKETSHARE	In relation (comparison) to the principal competitor: increased market share (1 – totally disagree to 5 – totally agree)
	SALES	In relation (comparison) to the principal competitor: increased sales (1 – totally disagree to 5 – totally agree)
	SIZE	In relation (comparison) to the principal competitor: increased size (1 – totally disagree to 5 – totally agree)
	PERFORMANCE	In relation (comparison) to the principal competitor: developed (in general) (1 – totally disagree to 5 – totally agree)
FINANC	YEARPERFOM	In relation (comparison) to the principal competitor: improved performance from the previous year (1 – totally disagree to 5 – totally agree)
	ROS ROA	ROS – Return on Sales (Net profit/Sales) ROA – Return on Assets (Net profit/Net Assets)
PRODUTIVITY	SALESWORK	Productivity (Sales/number of employees)
CONTROL	AGE4	Firm age: before 1974 (4), 75 to 84 (3), 85 to 94 (2) and 95 to 07 (1)
	SECTOR	Sector: heavy industry (5), transports (4), services (3), construction (2), light industry (1)

Table AI.

Table AII.
Pearson correlations
matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
CIAGE4	(1)														
CSECTOR	(2)	0.080													
FINPROD	(3)	-0.008	-0.029												
FINPROC	(4)	-0.025	0.031	0.450											
FINTECN	(5)	-0.032	0.100	0.374	0.566										
F2GROW	(6)	0.017	0.048	0.400	0.363	0.339									
F2COOPER	(7)	-0.060	0.045	0.282	0.349	0.339	0.410								
F2IMTAT	(8)	0.027	-0.001	0.196	0.171	0.094	0.230	0.355							
F3COMPETITORS	(9)	0.086	-0.027	0.125	0.106	0.133	0.207	0.257	0.503						
F3AGREEMENTS	(10)	-0.007	-0.015	0.158	0.241	0.366	0.243	0.294	0.290	0.526					
F3TECHCHANGE	(11)	0.042	0.006	0.196	0.381	0.527	0.267	0.431	0.253	0.364	0.410				
F3FINANCING	(12)	0.034	-0.080	0.152	0.158	0.140	0.196	0.221	0.297	0.340	0.318	0.176			
F4NPROJ	(13)	-0.031	0.035	0.411	0.473	0.357	0.499	0.312	0.092	0.251	0.140	0.385	0.618		
F4DEPINOV	(14)	-0.046	-0.032	0.443	0.497	0.435	0.393	0.442	0.244	0.302	0.309	0.495	0.230	0.429	
F4NMARKET	(15)	0.104	0.015	0.359	0.336	0.296	0.449	0.195	0.230	0.249	0.181	0.287	0.242	0.403	0.497
F4NBUSINESS	(16)	-0.079	-0.035	0.275	0.257	0.261	0.255	0.327	0.179	0.246	0.220	0.290	0.141	0.414	0.403
F5WCOMMITMENT	(17)	0.021	0.065	0.108	0.252	0.255	0.383	0.200	0.265	0.337	0.377	0.304	0.226	0.287	0.324
F5WDEDICATION	(18)	-0.018	-0.014	0.082	0.232	0.187	0.369	0.150	0.185	0.206	0.302	0.261	0.199	0.277	0.311
F5EXTRA	(19)	-0.085	0.076	0.080	0.147	0.139	0.299	0.085	0.149	0.088	0.188	0.114	0.101	0.162	0.166
F5HOLIDAYW	(20)	-0.146	0.061	0.047	0.159	0.122	0.289	0.142	0.196	0.146	0.223	0.105	0.165	0.131	0.220
F6DECISIONS	(21)	-0.089	-0.081	0.203	0.197	0.144	0.324	0.191	0.224	0.215	0.197	0.277	0.245	0.305	0.316
F6BUDGET	(22)	-0.087	-0.063	0.226	0.178	0.157	0.272	0.255	0.203	0.227	0.213	0.289	0.161	0.255	0.342
F6RECRUIT	(23)	-0.175	-0.174	0.177	0.214	0.196	0.291	0.248	0.093	0.206	0.223	0.285	0.152	0.326	0.381
D3MARKETSHARE	(24)	-0.019	-0.071	0.113	0.254	0.207	0.408	0.175	0.133	0.145	0.153	0.146	0.135	0.318	0.247
D3SALES	(25)	0.081	-0.143	0.046	0.157	0.129	0.354	0.144	0.093	0.102	0.148	0.151	0.108	0.227	0.210
D3SIZE	(26)	-0.029	-0.018	0.142	0.300	0.259	0.455	0.262	0.176	0.209	0.165	0.181	0.113	0.294	0.274
D3PERFORMANCE	(27)	0.048	-0.106	0.184	0.279	0.208	0.424	0.196	0.220	0.228	0.157	0.236	0.162	0.298	0.314
D3YEARPERFOM	(28)	0.066	-0.151	0.168	0.158	0.151	0.321	0.140	0.158	0.173	0.106	0.182	0.152	0.256	0.258
D1ROS	(29)	-0.092	0.119	0.030	0.073	0.096	0.177	0.166	0.049	-0.030	-0.076	0.090	-0.001	0.079	0.105
D1ROA	(30)	-0.027	0.095	-0.001	0.038	0.054	0.150	0.132	0.029	0.041	0.036	0.028	-0.085	0.054	0.107
D2SALESWORK	(31)	-0.057	0.063	-0.022	-0.019	0.007	0.099	0.093	0.024	0.028	0.065	0.045	0.034	-0.021	0.113

(continued)

	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
C1AGE4	(1)														
C2SECTOR	(2)														
FINPROD	(3)														
FINPROC	(4)														
FINTECN	(5)														
F2GROW	(6)														
F2COOPER	(7)														
F2IMTAT	(8)														
F3COMPETITORS	(9)														
F3AGREEMENTS	(10)														
F3TECHANGE	(11)														
F3FINANCING	(12)														
F4NPROJ	(13)														
F4DEEPINOV	(14)														
F4NMARKET	(15)														
F4NBUSINESS	(16)														
F5WCOMMITMENT	(17)	0.325													
F5WDEDICATION	(18)	0.370	0.823												
F5EXTRA	(19)	0.156	0.607	0.614											
F5HOLIDAYW	(20)	0.146	0.525	0.534	0.794										
F6DECISIONS	(21)	0.242	0.357	0.337	0.218	0.253									
F6BUDGET	(22)	0.213	0.245	0.226	0.164	0.656									
F6FCRUIT	(23)	0.237	0.237	0.235	0.171	0.360	0.442								
D3MARKETSHARE	(24)	0.190	0.326	0.338	0.233	0.273	0.175	0.176							
D3SALES	(25)	0.158	0.365	0.332	0.261	0.203	0.155	0.183	0.779						
D3SIZE	(26)	0.222	0.313	0.274	0.234	0.184	0.221	0.280	0.703	0.633					
D3PERFORMANCE	(27)	0.200	0.296	0.234	0.221	0.176	0.310	0.223	0.494	0.518	0.562				
D3YEARPERFOM	(28)	0.125	0.271	0.168	0.241	0.118	0.189	0.176	0.499	0.637	0.507	0.814			
D1ROS	(29)	0.094	0.085	0.027	0.083	0.093	0.105	0.117	0.149	0.092	0.217	0.059	-0.008		
D1ROA	(30)	0.143	0.130	0.087	0.068	0.085	0.153	0.126	0.158	0.132	0.260	0.081	0.011	0.704	
D2SALESWORK	(31)	0.107	0.072	0.156	0.116	0.121	0.049	0.015	0.119	0.158	0.127	0.135	0.111	0.019	0.041

The effect of
intrapreneurship

About the authors

J. Augusto Felício is Professor at the Management Department of the School of Economics and Management – Technical University of Lisbon (ISEG/UTL), where he is also chairman of the Centre for Management Studies and is director of several post-graduation programs and MBA. During his career he has also been a manager and director at public and private companies. His research interests also extend to corporate governance, international marketing, competition and competitiveness, transport management and corporate finance. J. Augusto Felício is the corresponding author and can be contacted at: jaufeli@iseg.utl.pt

Ricardo Rodrigues is a Researcher at the Centre for Management Studies of the School of Economics and Management – Technical University of Lisbon (ISEG/UTL).

Vítor R. Caldeirinha is a Researcher at the Centre for Management Studies of the School of Economics and Management – Technical University of Lisbon (ISEG/UTL).