UNIVERSIDADE DE ÉVORA

INSTITUTO DE INVESTIGAÇÃO E FORMAÇÃO AVANÇADA

TESE DE DOUTORAMENTO

PROGRAMA DE DOUTORAMENTO EM GESTÃO

RAMO DE MARKETING

Strategic Orientations, Dynamic Capabilities and Firm Performance in Knowledge Intensive Business Services:

Theory and Empirical Test

Maria Dulce da Costa Matos e Coelho

Orientação: Professor Doutor Soumodip Sarkar

Fevereiro 2011

UNIVERSIDADE DE ÉVORA

INSTITUTO DE INVESTIGAÇÃO E FORMAÇÃO AVANÇADA

DISSERTATION PRESENTED FOR THE DOCTOR OF PHILOSOPHY DEGREE

MANAGEMENT PH.D. PROGRAM – MARKETING

Strategic Orientations, Dynamic Capabilities and Firm Performance in Knowledge Intensive Business Services:

Theory and Empirical Test

Maria Dulce da Costa Matos e Coelho

Ph.D. Supervisor: Professor Doutor Soumodip Sarkar

February 2011

To my loving husband and children

José, Pedro, Manuel and Sofia

my parents, aunt and brothers

José, Maria Júlia, Dulce, José Ernesto and Vitor Jorge

Acknowledgements

Being a Ph.D. Student was the most challenging learning experience I have had in my life, and there are a number of individuals that have helped me to accomplish this work. First, I would like to express my gratitude and thanks to my supervisor, Professor Soumodip Sarkar, as well as to the Director of the Ph.D. Program, Professor Cesaltina Pires, who have guided me during these years of learning, made of joy but also of inquietude. I have learnt a lot and I have to thank you for this.

I am also grateful to all the CEOs and top managers of the selected firms in Portugal for spending their crucial time by responding to the questionnaire.

Several people have contributed to this thesis by their vital inputs, not only the anonymous reviewers of the communications that I have made since 2006 but also the comments made during the presentation of the communications, as well as my colleagues at Escola Superior de Ciências Empresariais – Instituto Politécnico de Setúbal and my Ph.D. colleagues at Universidade de Évora. Our informal discussions were most valuable.

I would like to give a special acknowledgment to all my family members, especially my husband and children - the youngest one born during my Ph.D. journey and the older ones grown up amongst scientific journals instead of fairy tales - for their unconditional support, love and encouragement as well as my friends for their support and understanding.

I wouldn’t have accomplished what I did without your love and friendship!

Setúbal, February 2011

Abstract

In the present study, we try to identify the factors that induce superior performance in companies, analyzing the link between strategic orientations, dynamic capabilities and firm performance. In order to test the theory, we collected primary data through an online questionnaire to SMEs in Knowledge Intensive Business Services. At first, we analyze the interactions between entrepreneurial and market orientation, as well as between market and learning orientation and its effects on firm performance, to examine if the reported conclusions are valid to this particular industry, using a different measure of firm performance. Our main contribution respects the integration of strategic orientations and dynamic capabilities to explain firm performance, where we attempt to understand both direct and indirect effects on firm performance which, to our best knowledge, is the first research study of this kind. We also come up with practical contributions and point some research limitations and directions for future research.

Resumo

Orientações Estratégicas, Capacidades Dinâmicas e Desempenho Empresarial nos Serviços Intensivos em Conhecimento: *Teoria e Teste Empírico*

No presente estudo, procuramos identificar os fatores que originam um desempenho empresarial superior, através da análise da relação entre as orientações estratégicas, capacidades dinâmicas e desempenho da empresa. No sentido de testar a teoria, recolhemos dados primários através da aplicação de um questionário *online* às PME dos Serviços Intensivos em Conhecimento. Em primeiro lugar, analisamos as interações entre as orientações empreendedora e para o mercado, assim como entre as orientações para o mercado e para a aprendizagem e os seus efeitos no desempenho, com o objetivo de verificar se as conclusões de outros estudos são válidas para este setor em particular, utilizando uma medida de desempenho inovadora. O nosso principal contributo diz respeito à integração das orientações estratégicas e das capacidades dinâmicas para explicar o desempenho, em que procuramos compreender tanto os efeitos diretos como indiretos no desempenho o que, pelo que nos é dado a conhecer, é o primeiro estudo deste tipo. Finalmente, indicamos algumas considerações práticas, assim como limitações do nosso estudo e rumos para investigações futuras.

GLOSSARY OF ABBREVIATIONS

ANOVA - Analysis of Variance

BSC - Balanced ScoreCard

BvDEP - Bureau van Dijk Electronic Publishing

CAE - Classificação das Actividades Económicas (Statistical Classification of Economic Activities in Portugal)

CEO – Chief Executive Officer

CIS - Community Innovation Surveys

CVR - Covariance Ratio

DC – Dynamic Capabilities

EO – Entrepreneurial Orientation

EU - European Union

ICT – Information and Communication Technologies

IEBV - International Entrepreneurial Business Venture

IJV - International Joint Venture

IMO - Internal Market Orientation

INE – Instituto Nacional de Estatística (Statistics Portugal)

KIBS – Knowledge Intensive Business Services

LO – Learning Orientation

MO – Market Orientation

NACE - Nomenclature Statistique des Activités Économiques dans la Communauté Européenne (Statistical Classification of Economic Activities in the European Community)

OECD - Organisation for Economic Co-operation and Development

P-KIBS - Professional Services

PCA - Principal Components Analysis

Ph.D. - Doctor of Philosophy (for the latin *philosophiae doctor)*

RBV – Resource Based View

R&D - Research and Development

ROA – Return on Assets

ROI– Return on Investment

SME – Small and Medium Enterprises

SO – Strategic Orientation

SPSS - Statistical Package for the Social Sciences

T-KIBS - Technology-based Services

USA – United States of America

VIF - Variance Inflation Factor

VRIN - Value, Rareness, Imperfect imitability and Non-substitutability

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Previous Note:

"The reasonable man adapts himself to the world. The unreasonable one persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man".

George Bernard Shaw

Introduction

The present study results from our quest for what induces competitive advantage and superior performance in a company. With this in mind, in **chapter I** we begin by making some methodological considerations, reflecting about the possible frameworks that fit the design of the research proposal, and by clarifying the main features of the study, from reflecting about the general philosophical ideas behind the inquiry to the detailed data collection and analysis procedures.

In **chapter II**, we elucidate what are the main concepts that we plan to use and we share with the reader the results of other studies related to ours, thus indicating the established dialogue in the literature about this topic. Thus, we start with a thorough literature review to understand with more detail our research topic and to understand the different perspectives that have been used to study our research topic, as well as to identify the main conclusions and gaps in the literature. Therefore, we explain why it is important to study the firm's sources of competitiveness and superior performance, we summarize the studies that analyze the sources of competitive advantage and superior firm performance and present the various constructs that have been used in these studies, and how can these constructs be operationalized, as well as the schools of thought of the strategic management literature. We end this chapter with the gaps identified in the review of the literature, and a synthesis of the main studies relating strategic orientations and firm performance.

Chapter III explains the research design, where the research strategies and data collection are presented and where we make a review of the several perspectives adopted in the study of the relationship between some strategic orientations and firm performance. The purpose of the study is then stated, as well as the new research questions that we propose to answer, synthesized on a conceptual model. Likewise, we state the reasons that guided our choice of Knowledge Intensive Business Services as our object of study and make some considerations about the sample size, participants, development of the questionnaire and measures used.

Because in the social sciences usually we try to measure things that cannot directly be measured, generally we try to measure the different aspects of the variable, and then, use some technique to verify if the identified facets really reflect a single variable. Thus, in **chapter IV** we perform a confirmatory factor analysis because, since the scales that we use have already been tested to ensure they are measuring the mentioned dimensions, what we need to do is to validate our questionnaire, that is, we have to assess the reliability of our scale. In other words, we need to test the internal consistency of our questionnaire to validate if it is consistently reflecting the construct that it is measuring.

Next, we replicate two well-known studies to a different setting, to examine if their conclusions are valid to a particular industry – Knowledge Intensive Business Services. Thus, in **chapter V** we analyze the interaction between entrepreneurial orientation and market orientation and its effect on firm performance. In **chapter VI** we analyze the interaction between market orientation and learning orientation and its effect on firm performance. Notwithstanding some scholars have already integrated these constructs, using traditional measures of firm performance as dependent variable, in the present study we use a different performance measure which includes not only traditional items of sales and profit but also customer value and corporate social responsibility, which brings a different perspective to the problem.

Our main contribution to the existing literature respects the integration of strategic orientations and dynamic capabilities to explain firm performance, presented in **chapter VII**. In a new conceptual model we introduce an integrative approach of several strategic orientations and dynamic capabilities, where we attempt to identify patterns regarding how firms' strategic orientations and dynamic capabilities can be linked to firm performance for Small and Medium Enterprises in Knowledge Intensive Business Services. In it we try to join strategic orientations and dynamic capabilities, and understand the direct and indirect effects on firm performance which, to our best knowledge, is the first research study of this kind, since previous ones focused mainly on direct effects on business performance. One differentiator aspect of our analyses is the firm performance measure, which includes non traditional items, in order to reflect the several concepts associated with performance.

Ultimately, we present our discussion and conclusions in **chapter VIII**, stating that the development of this model allowed us to integrate several strategic orientations and dynamic capabilities to explain firm performance, which should be a more realistic approach than previous ones that examined bivariate relationships, and makes it also possible to explain the relative importance of several orientations. We also come up with practical contributions and point some research limitations. We end with some directions for future research.

CHAPTER I - METHODOLOGICAL CONSIDERATIONS

In order to design a research proposal or plan, Creswell (2003) suggests adopting a general framework elucidating about all facets of the study, from assessing the general philosophical ideas behind the inquiry to the detailed data collection and analysis procedures. We should therefore identify the framework that best fits the design of the research proposal, which can be done through three approaches, namely quantitative, qualitative and mixed-methods. To understand these approaches to research, three elements should be indicated:

- Philosophical assumptions about what constitutes knowledge claims or **paradigms;**
- General procedures of research called **strategies of inquiry;**
- Detailed procedures of data collection, analysis and writing, called **methods**.

It's true that these three approaches have different characteristics, but currently it's extremely difficult to classify a research as a quantitative or qualitative work. Nowadays, the main question is how research practices lie on a continuum between the two extremes. Thus, we can only say that a study tends to be more quantitative or qualitative in nature (Creswell, 2003, p. 4).

To choose one approach over another for the design of the proposal one should have in mind, among other considerations, the research problem. If the problem is identifying factors that influence an outcome, the utility of an intervention, or analyzing the best predictors of outcomes, a quantitative approach is best. This is also the case for testing a theory or explanation. If a phenomenon needs to be better understood, a qualitative approach should be chosen, because this is an exploratory approach. If the researcher wants to both generalize the findings to a population and have a detailed view of the meaning of a phenomenon, it is more useful to adopt a mixed methods design (Creswell, 2003, pp. 21-22).

In what concerns the elements of the three approaches mentioned, we think we ought to clarify what we mean by paradigms[1]. Stating a paradigm means that researchers start a project with certain assumptions about how they will learn and what they will learn during their inquiry (Creswell, 2003, p. 6). Four schools of thought about paradigms can be identified, namely, postpositivism, constructivism, advocacy/participatory school, and pragmatism.

We can say that **postpositivism** is generally identified with the scientific method or quantitative research, reflecting a deterministic philosophy (in which causes probably determine effects or outcomes[2]) and it is also "reductionistic" (in what the intent is to reduce the ideas into a small, discrete set of ideas to test, such as the variables that constitute hypotheses and research questions). This scientific method assumes there are laws or theories that govern the world, so the individual begins with a theory, collects data that either supports or refutes the theory, and then makes necessary revisions before additional tests are conducted (Creswell, 2003, p. 7).

In what concerns the other schools of thought, we can briefly say that in **social constructivism** individuals seek understanding of the world in which they live based on subjective meanings of their experiences. In **advocacy/participatory approach**, researchers believe that inquiry needs to be intertwined with politics and a political agenda for reform that may change the involved people's lives. In **pragmatism**, emphasis is placed more on the solutions to problems than on methods, and it is associated with mixed methods studies, where the researcher works to provide the best understanding of a research problem (Creswell, 2003, pp. 8-12).

With these considerations in mind, in the present research we begin by questioning which are the sources of competitive advantage, at the firm level, and how can firm performance be explained. Given the nature of our research problem, we believe the quantitative is the most suitable approach with the postpositivism paradigm. The possible strategies of inquiry associated with this approach are:

---

[1] These paradigms (Lincoln and Guba, 2000; Mertens, 1998) or knowledge claims (Creswell, 2003) might also be called philosophical assumptions, epistemologies and ontologies (Crotty, 1998), or research methodologies (Neuman, 2000).

[2] Because knowledge is conjectural, and thus absolute truth can never be found, researchers do not prove hypotheses and instead indicate a failure to reject.

- experimental design – which implies the random selection and attribution of subjects to the treatment conditions – and quasi-experiments (non-random designs);
- surveys, which include cross-sectional or longitudinal studies using questionnaires or structured interviews to collect data, in order to generalize to a population the characteristics of a sample.

In the present study, we use the survey as strategy of inquiry, with questionnaires to collect the data, because our aim is to generalize the findings to a whole population. So, we make a deep review of the literature about the sources of competitive advantage and firm performance, at the level of the firm, and examine the main perspectives adopted to study this problem. Then, we identify the main conclusions and gaps in the existent literature, explain our research design, and replicate two well-known studies to a different setting. These two studies have been applied to other industries and countries, and we intend to examine if their conclusions are valid to a particular industry in Portugal. Then, a new conceptual model is introduced, with the aim of closing some gaps identified in the literature. Finally, our conclusions and discussion are presented, as well as some practical contributions, research limitations and directions for future research.

CHAPTER II - REVIEW OF THE LITERATURE

The first thing to do in any kind of research is to clarify the main concepts that we are planning to use and to share with the reader the results of other studies closely related to ours, providing a framework and indicating the dialogue that is going on the literature about a topic (Creswell, 2003, p. 29). Therefore, we begin by explaining why it is important to study firm's sources of competitiveness and superior performance, we summarize the studies that focus on the sources of competitive advantage and superior firm performance and present the various constructs that have been used in these studies, and how can these constructs be operationalized, as well as the schools of thought of the strategic management literature.

II.1 Why study firm's sources of competitiveness

Following the advice of Creswell (2003), we begin by identifying a topic to study, i.e., the central idea to explore, and to draft a "working title" for the study, assuming that this brief title becomes a major road sign in research. After a first review of the literature we came to the conclusion that we would like to understand the relation between the strategy of the firm and its performance, which is linked with the competitive advantage of the firm since the leading hypothesis in strategic management is that sustained performance arises from sustainable competitive advantages (Powell, 2001, after Barney, 1997; Grant, 1998; Roberts, 1999). In other words, some firms have superior performance, which is due to specifiable causes, and these are linked to the concept of competitive advantage, defined as a unique position that a firm possesses in comparison with its competitors, which must be perceived by its customers.

One question that came up in the beginning of the present research was if we should try to explain the competitive advantage of the firm or its superior performance. In fact, it is frequent in the literature to use interchangeably the terms superior performance and competitive advantage. Yet, there are several criticisms relative to the concept of competitive advantage. We can cite Powell (2001), for example, who asserts that competitive advantage hypotheses are varied and ambiguous, and do not admit the inference that competitive advantage produces superior performance. One of the aforesaid problems is that most empirical studies infer the existence of competitive advantage from *ex post* observations of performance, and draw the conclusion that creating competitive advantage *ex ante* produces superior performance. The other problem is the possibility that a firm possesses competitive advantage in an area and competitive disadvantage(s) in other(s) or the possibility of existing some industries in which no firm possesses sustainable competitive advantage, among other epistemological problems (Powell, 2001). On the other hand, other explanations for superior performance exist, and some researchers even conclude that each case of superior performance is unique and, as such, non-generalizable (Starbuck, 1992, 1993).

Although these critiques could be more directed to the resource-based view (hereafter referred to as RBV), they are not unique to this school of thought, because many industry-level phenomena are also ambiguous (Powell, 2001). Anyway, Powell (2001) also argues that perhaps we should not concern much about formal logic or epistemological truth, because in an imperfect world we know that theories are also imperfect, and our task as scholars is not perfection or non-contradiction but intellectual progress. Taking the several arguments into consideration, it is our opinion that firm performance should be our dependent variable, because it does not give rise to so many methodological problems as the competitive advantage concept, and its measurement is more objective.

Therefore, it is performance, not competitive advantage, the dependent variable in our study. In fact, performance is the main dependent variable analyzed in the strategic management literature (Eisenhardt and Zbaracki, 1992; Schendel and Hofer, 1979) and, as Wolff and Pett (2006) also point out, within Small and Medium Enterprises (hereafter referred to as SME) research, the matter of firm performance as a dependent variable has also gained importance in recent years (e.g., Covin and Covin, 1990; Lau, Man, and Chow, 2004; Sadler-Smith, Hampson, Chaston, and Badger, 2003; Swierczeck and Ha, 2003).

The relationship between the competitive strategy of the firm and its performance has been studied at different levels, because some scholars view superior performance as a phenomenon that occurs at the level of the firm, but others conceptualize it as occurring at the business unit, corporation, or industry level. In the present study we focus on the firm level. During our review of the literature, we also concluded that several broad perspectives have been adopted to analyze this theme, especially because there are different theories that emerged from different research fields. In our opinion we should give attention to several fields of research, following Teece, Pisano, and Shuen (1997, p. 530):

> *"Researchers in the field of strategy need to join forces with researchers in the fields of innovation, manufacturing, and organizational behaviour and business history if they are to unlock the riddles that lie behind corporate as well as national competitive advantage. There could hardly be a more ambitious research agenda in the social sciences today."*

In fact, after decades of independent evolution, we have been watching in recent years that there has been a claim for the integration of entrepreneurship research and strategic management research to explain the sources of higher performance (Choi and Shepherd, 2004; Hitt, Ireland, Camp, and Sexton, 2001; Ireland, Hitt, and Sirmon, 2003; McGrath and MacMillan, 2000; Zahra and Dess, 2001). This convergence partly results from a convergence in research domains especially in what concerns entrepreneurship in established organizations (Hitt, Ireland, Camp, and Sexton, 2001), and due to the awareness of the existence of complex organizational phenomena which require multidisciplinary approaches. This awareness is, in short, what motivates us to accomplish this study.

Our purpose is to provide an integrative framework for exploring the relationship between the competitive strategy of the firm and its performance, by integrating prior theory and empirical findings. Therefore, it is essential to clarify the main concepts related to strategic management that we are planning to use, namely competitive strategies, competitive advantage, strategic orientation (hereafter referred to as SO), and firm performance, as well as to present the main schools of thought of strategic management literature.

II.2 What are competitive strategy, competitive advantage and their relation to firm performance

First of all, we begin by clarifying what is meant by **competitive strategy**. In general, strategy definitions can be grouped in three clusters (Chaffee, 1985), namely linear or planning (e.g., Chandler, 1962), adaptive (e.g., Hofer, 1973), and interpretive (e.g., Pettigrew, 1977). Thus, strategy can be viewed as the "determination of the basic long-term goals of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals" (Chandler, 1962, p. 13), or as "the development of a viable match between the opportunities and risks present in the external environment and the organization's capabilities and resources for exploiting these opportunities" (Hofer, 1973, p. 3), or as "orienting metaphors constructed for the purpose of conceptualizing and guiding individual attitudes of organizational participants" (Pettigrew, 1977, quoted in Chaffee, 1985, p. 94).

In the words of Porter (1996), strategy is the achievement of a valuable and unique position, which involves trade offs and the achievement of fit among certain activities and industry changes. Hofer and Schendel (1978) state that a strategy describes the characteristics of the fit achieved by an organization between its capabilities and resources, on one hand, and the opportunities and threats derived from its external environment, on the other hand, to reach its objectives.

According to Chrisman, Hofer, and Boulton (1998), three components should be used to describe the competitive strategy of the firm, namely scope (configuration of the interactions between the organization and its environment which describes its action domain), types of strategic weapons (how an organization applies its capabilities and resources to match the environmental needs and to create long-term competitive advantages[3]) and segment differentiation (use of different types of strategic weapons in distinct market segments). Combining the possible options about scope, types of strategic weapons and segment differentiation, Chrisman, Hofer, and Boulton (1988) propose fourteen generic strategies, while Porter (1980) proposes only three generic

[3] According to the classification of Porter's generic strategies, the competitive weapons are low cost and differentiation, which allow the organization to have an advantage over its competitors.

strategies, namely differentiation, cost leadership, and focus (the latter based on differentiation or cost).

Fit is a concept that has been widely explored by strategic management literature, because most of the researchers assume that it will be easier for a firm to achieve a higher performance if there is a coherence between internal and external competitive factors. So, strategic fit implies there is an alignment of the organizational resources, capabilities and competencies, on one hand, and external opportunities and threats, on the other hand (Bourgeois, 1980; Schendel and Hofer, 1979). Besides, strategic fit also implies consistency between the internal activities performed by the organization.

From the idea of strategic fit, Child (1972) introduces the notion of equifinality in the analysis of corporate performance, which means that in similar contexts there can be equally effective distinct organizational strategies (Doty, Glick, and Huber, 1993). By equifinality it is meant that managers of firms probably begin the development of strategies from different starting points and take unique paths but, since they end up with capabilities with similar attributes, there are multiple paths (equifinality) to the same ends (Eisenhardt and Martin, 2000). So, Doty, Glick, and Huber (1993) argue that different strategic approaches can represent equally viable means of reaching competitive advantage in a given industry, and high performance depends on the possession of coherence between internal and external dimensions.

Since the decade of 1960, a framework has dominated the strategic management research (Andrews, 1971; Ansoff, 1965; Hofer and Schendel, 1978), based on the relations established between internal factors (strengths and weaknesses) and external factors (opportunities and threats). The aim is that the firm implements strategies that use its strengths and take advantage of opportunities, avoiding threats and overcoming weaknesses. According to this framework, this would be the path to obtain a sustainable competitive advantage. However, two decades from now some scholars begun to emphasize the possession of idiosyncratic firm resources to obtain competitive advantage, to the detriment of the concept of strategic fit and new frameworks arised in strategic management research, namely RBV, dynamic capabilities school, and knowledge-based approaches.

Beside the concept of competitive strategy, it is also important to clarify what is meant by **competitive advantage**. The theme of competitive advantage has produced a great amount of research, and competitive advantage is universally accepted in strategic management as an essential concept (Powell, 2001, after Barney, 1997; Grant, 1998). It is generally defined as a unique position that a firm possesses in comparison with its competitors, which must be perceived by its customers. Thus, if a firm has some superiority but customers do not perceive it, we cannot call it a competitive advantage, so what should be analyzed to understand competitive advantage is the value to the customer, as stated by Cater and Pucko (2006). In line with these scholars, we can say that a firm can offer superior value to the customer by offering similar products or services having a lower cost or through the differentiation of its offering, which allows to have higher prices. As such, two fundamental forms of competitive advantage are generally identified in the strategic management literature: low costs and differentiation. Evidence of a competitive advantage is a position of superiority in an industry or market (Bamberger, 1989).

As to the sources of competitive advantage and superior performance, theories differ. For example, superior performance derives from protected market positions (e.g., Caves and Porter, 1977; Porter, 1980), strategic interactions (e.g., Branderburger and Nalebuff, 1996; Ghemawat, 1986; Shapiro, 1989), idiosyncratic resources (e.g., Lippman and Rumelt, 1982; Wernerfelt, 1984), or dynamic capabilities to adapt to continuous change (e.g., Teece, Pisano, and Shuen, 1997; Winter, 1987). As Powell (2001) puts it, these latter sources of superior performance - resources and capabilities - may result from unique and intangible organizational characteristics such as leadership, culture, relationships, processes, or dynamic interactions among technological and behavioural variables (Barney, 1986; Connor, 1991; Dierickx and Cool, 1989; Grant, 1991; Reed and DeFillipi, 1990).

As we have mentioned, there are several studies that explain the sources of competitive advantage of the firm, and these sources can be internal or external. But how can these sources relate to the performance of the firm? Cater and Pucko (2006) argue that the process of competition between firms follows a “causal-consecutive sequence”, where firms develop certain sources of competitive advantage, which leads to different forms of competitive advantage which, in turn, leads to financial and nonfinancial performance.

Cater and Pucko (2006) identify in the literature the following sources of competitive advantage: external ones (characteristics of the national economy, weak bargaining power of suppliers, weak bargaining power of buyers, low threat of substitution, low threat of new entrants, mild rivalry among existing firms), a firm's strategic response, the firm's resources (financial, human, organizational, tangible and intangible), the firm's capabilities (managerial, input-based, transformational, output-based and functional), capital (human and structural) and knowledge (explicit and tacit).

As forms of competitive advantage, Cater and Pucko (2006) identify the following ones: lower price, differentiation, superior product/service, total supply, speed, flexibility and positive image. However, these scholars argue that real sources of competitive advantage are usually well hidden, making it impossible for a researcher to measure them completely objectively. A possible solution to this problem is asking the top managers what in their opinions are the sources and forms of competitive advantage. Due to this difficulty to measure a competitive advantage, Cater and Pucko (2006) state that the only thing that we can be sure of is that the sources of competitive advantage lead to higher performance.

Cater and Pucko (2006) write that several studies show that both internal and external sources of competitive advantage have a statistically significant influence on a firm's performance (Spanos and Lioukas, 2001), though internal sources seem to be more important. Cater and Pucko (2006) report the following results: Hansen and Wernerfelt (1989) demonstrated that internal sources explain 37.8% of the variance in different performance indicators, while external sources explain only 18.5% of the variance; Other studies show similar conclusions, namely Rumelt (1991) (45.8% versus 4.0%), Roquebert, Phillips, and Westfall (1996) (55.0% versus 10.2%), McGahan and Porter (1997) (36.0% versus 18.7%), Mauri and Michaels (1998) (36.9% versus 6.2%); Similar results are also reported by Aragón-Sánchez and Sánchez-Marín (2005), Barney (1986), Cater and Pucko (2006), Maijoor and Van Witteloostuijn (1996), Powell (1993), among others; A few studies show that external sources have a preponderant influence (e.g., Kotha and Nair, 1995).

According to Reed and DeFillippi (1990), cited by Menguc and Auh (2006), superior firm performance is a function of a sustainable competitive advantage that is driven by barriers to imitation, which depends on their causal ambiguity. This ambiguity has three main drivers: tacitness, complexity, and specificity. As a complex and unique capability, the SO of the firm may also be considered a crucial element with important implications for the efficiency of firms, especially SMEs (Aragón-Sánchez and Sánchez-Marín, 2005, after Hambrick, 1983; Snow and Hrebiniak, 1980). Hence, depending on the adopted SO, the firm may give more or less importance to aspects like technological position, innovation, organizational design, and human resource management (Conant, Mokwa, and Varadarajan, 1990), flexibility and organizational design, and cooperation (Aragón-Sánchez and Sánchez-Marín, 2005), among other factors which can explain firm performance (Slater and Narver, 1993).

II.3 Schools of thought of strategic management literature

One of the most known classifications of schools of thought in strategic management is Mintzberg, Ahlstrand, and Lampel's (1998), which identifies the following schools: design, planning, positioning, entrepreneurial, cognitive, learning, power, cultural, environmental, and configurational. The first three are said to be prescriptive, while the others are descriptive in nature, being the last mentioned school an integrative framework. Each of these schools only focuses on a limited number of aspects of the whole strategic process and because the distinction between these schools is based on the process of strategy formation, they are of limited value for the present research.

Reviewing the scientific papers on this matter, we found five basic schools in strategic management, which explain the sources of superior performance and competitive advantage: the industrial organization school, an approach based on strategic conflict, the resource-based school, the capability-based school and the knowledge-based school.

Some of these schools of thought argue that industry factors are the main determinants of firm performance, i.e., the characteristics of an industry delimit the options available to a business for developing competitive strategy. Others argue that the most important factors are organizational factors, i.e., the possession of resources and the reconfiguration of the firm's capabilities are the essential determinants for the development of competitive strategy. Therefore, within the frameworks that give more importance to industry factors, firm profitability is viewed as a function of industry structure. In contrast, those frameworks that give more relevance to organizational factors view firm profitability as a function of firm resources and capabilities.

The debate over which factors are more important - industry or organizational factors - in determining firm performance is not conclusive. Relatively to this question, Parnell and Hershey (2005) and Amit and Schoemaker (1993) conclude both sets of factors are important, so the two perspectives can be complementary, and that the influence industry has on firm performance appears to be greatest when businesses choose to adapt to existing conditions rather than attempt to influence them.

According to Teece, Pisano, and Shuen (1997), the **first** and dominant paradigm in strategic management during the 1980s was the competitive forces approach (Porter, 1980), based upon the structure-conduct-performance paradigm of industrial organization. However, as highlighted by Cater and Pucko (2006), within the industrial organization school, there are two different views of the sources of competitive advantage. On one side, those who belong to classical industrial organization school (Bain, 1956; Mason, 1939) argue that the sources of competitive advantage are the characteristics of the environment and structural parameters of the industry, and declare that a firm cannot influence external factors and cannot even influence its own performance (Gadhoum, 1998; Lado, Boyd, and Wright, 1992). On the other side, a new group of scholars (e.g., Porter, 1980), although recognizing the role of some key parameters of industry, argue that the strategic choices firms actually make can influence industry and its evolution. This is one of the reasons why Porter (1980) argues that a firm should position itself in order to defend the firm against the competitive forces.

Although within this paradigm industry attractiveness is considered the main source of superior profitability (and this is the main reason why there is a quest for favourable industries, segments and strategic groups), empirical investigation has failed to support the link between industry structure and profitability (Grant, 1991).

According to Teece, Pisano, and Shuen (1997), the **second** approach, based on strategic conflict (Shapiro, 1989), views profitability as a function of the effectiveness with which firms face their rivals through strategic investments, pricing strategies, signalling, and the control of information. A key idea in this approach, that uses the tools of game theory, is that a firm can influence the actions of competitors and thus manipulate the market environment (Teece, Pisano, and Shuen*,* 1997).

A **third** school, the resource-based one, relies upon the resource-based view of the firm, and considers that unique capabilities and assets, as well as the existence of isolating mechanisms are the main determinants of firm performance (Barney, 1991; Nelson, 1991; Penrose, 1959; Peteraf, 1993; Prahalad and Hamel, 1990; Rumelt, 1984; Teece, 1984; Teece, Pisano, and Shuen, 1997; Wernerfelt, 1984).

While the first and second approaches share the view that rents (profits)[4] result from advantageous positioning, the resource-based approach emphasizes obtaining entrepreneurial rents that result from efficiency advantages (Teece, Pisano, and Shuen*,* 1997). In other words, the main proposition of RBV argues that firms with superior resources and capabilities, when compared to its competitors, can achieve competitive advantage and thus higher rates of return.

RBV is regarded as an important theoretical framework in strategic management focusing on the internal organization of firms, which are conceptualized as collections of resources and capabilities (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984). Resources can create entry barriers or isolating mechanisms for obtaining firm's economic rents (Wernerfelt, 1984). A firm's resources or "tangible and intangible assets which are tied semi-permanently to the firm" (Wernerfelt, 1984, p. 172) are generally classified as physical, financial, human and organizational resources (Barney, 1997), financial, physical, human, technological, reputation and organizational resources (Hofer and Schendel, 1978), among other classifications.

[4] As Grant (1991) notes, the academic literature increasingly uses the term "rent" to refer to "economic profit", because of the ambiguity associated with accounting definitions of profit. "Rent" can be defined as the surplus of revenue over the "real" or "opportunity" cost of the resources used in generating that revenue (being the "real" or "opportunity" cost of a resource the revenue it can generate when an alternative use in the firm is given to the resource or the price which it can be sold for).

Although viewing all resources as crucial, the literature considers intangible resources (human and organizational) as more relevant for creating a competitive advantage than tangible ones (physical and financial) (McWilliams, Van Fleet, and Wright, 2001; Whitehill, 1997; Wright, McMahan, and McWilliams, 1994; Zupan, 1996), especially because intangible resources and capabilities are difficult to imitate and valuable (Bharadwaj, 2000; Matusik and Hill, 1998; Prahalad and Hamel, 1990), since they are based on non-codified data and tacit knowledge and they are generally embedded in the skills and experience of employees, processes, procedures and routines.

In our literature review, we found studies that demonstrate that several intangible factors contribute to the SMEs competitiveness and success, namely organizational structure and change (Feigenbaum and Karnani, 1991), flexibility and organizational design, and cooperation (Aragón-Sánchez and Sánchez-Marin, 2005), human resource management (Bacon, Ackers, Storey, and Coates, 1996), innovation and technological resources (Hitt, Hoskisson, and Ireland, 1990), among other factors, e.g., leadership, culture, relationships, processes, and dynamic interactions (Barney, 1986; Connor, 1991; Dierickx and Cool, 1989; Grant, 1991; Reed and DeFillipi, 1990).

In dynamic markets knowledge is also considered as a primary source of competitive advantage (Dickson, 1992; Grant, 1996a; Hitt, Ireland, and Hoskisson, 1999; Hoskisson, Eden, Lau, and Wright, 2000). McDonough, Zach, Lin, and Berdrow (2008) state that competitive advantage is a function of the firm's ability to align its positioning in what concerns products/markets, knowledge and innovation, and to realign them as the environment changes.

According to RBV of the firm, a firm's advantage over its competitors results from the use of valuable, hard-to-imitate and hard-to-substitute assets. The main lesson of RBV is that only resources which possess certain characteristics are capable of generating and sustaining high performance. According to Peteraf (1993), resources must satisfy four conditions to create a sustainable competitive advantage, namely heterogeneity, imperfect mobility, and *ex-post* and *ex-ante* limit to competition. Barney (1991) names four unique characteristics in order to result in sustainable competitive advantage, namely, value, rareness, imperfect imitability and non-substitutability (VRIN).

According to this logic, strategic assets are intangible and they can be categorized as assets, when firms own and often legally protect them (e.g., patents), and as skills (e.g., employee know-how and culture).

Firm resources can be seen, as stated in Barney (1991), as strengths that firms can use in their strategies, in the language of traditional strategic analysis (e.g., Learned, Christensen, Andrews, and Guth, 1969; Porter, 1981). In practice, it is difficult that a firm possesses resources with the characteristics named by Barney (1991) and Peteraf (1993), so it is essential that a firm combines and strategically uses different resources and this combination will also depend upon a firm's capabilities or core competencies (Penrose, 1959). Core competencies, according to Prahalad and Hamel (1990), are the collective learning in the organization, especially relative to the coordination of different skills. They have three identifying elements: they provide potential access to a wide variety of markets; they make a significant contribution to the perceived customers' benefits of the end products; and it is difficult for competitors to imitate them.

According to Day (1994, p. 38), "capabilities are complex bundles of skills and accumulated knowledge, exercised through organizational processes, that enable firms to coordinate activities and make use of their assets". Thus, while resources are tangible and can easily be acquired, firm's capabilities are unique and a source of competitive advantage (Baden-Fuller, 1995; Barney, 1991).

Although RBV is considered a reference theory in the strategic management literature, Levitas and Ndofor (2006) say it has been criticized as being tautological, overly simplistic, and for the most part untestable (Bromiley and Fleming, 2002; Foss, Knudsen, and Montgomery, 1995; Priem and Butler, 2001). For example, while several studies attempted to identify the key resources or capabilities of the RBV, it has been argued that true competitive advantages are not simply embedded in resources or capabilities but rather involve a complex network of interactions which evolve over time (Black and Boal, 1994; Dierickx and Cool, 1989). So, each of the VRIN (valuable, rare, inimitable, and nonsubstitutable) factors interacts to determine the others, which is extremely difficult to test (Levitas and Ndofor, 2006).

For this reason, some scholars argue that generalizability is not an appropriate goal for RBV, advocating that it is the least relevant of the external validity criteria (Cook and Campbell, 1979). However, as also noted by Levitas and Ndofor (2006), recent research in RBV abandoned the VRIN framework and its emphasis on trying to protect static sources of competitive advantage and started focusing on the dynamic aspects of capabilities (Eisenhardt and Martin, 2000; Teece, Pisano, and Shuen, 1997), where the focus is on the continuous creation and adaptation of resources and capabilities to produce future competitive advantages (Winter, 2003).

The capabilities are the foundation of the **fourth** school, where different expressions are used to describe the sources of competitive advantage, namely organizational capital (Prescott and Visscher, 1980), distinctive capabilities (Hitt and Ireland, 1985; Snow and Hrebiniak, 1980), core competencies (Leonard-Barton, 1992; Post, 1997; Prahalad and Hamel, 1990), organizational capabilities (Collis, 1994), core skills (Tampoe, 1994), and dynamic capabilities (Brown and Eisenhardt, 1998; Eisenhardt and Martin, 2000; Teece, Pisano, and Shuen, 1997).

Although there are many expressions that refer to these capabilities, we prefer to use the term "dynamic capabilities" (hereafter referred to as DC), because as noted by some scholars (Brown and Eisenhardt, 1998; Eisenhardt and Martin, 2000; Teece, Pisano, and Shuen, 1997), it links RBV to the concept of market dynamism, a concept that has a growing importance in today's business environment, which is increasingly complex and dynamic (Jogaratnam, Tse, and Olsen, 1999; Olsen, West, and Tse, 1998). In dynamic environments there is high unpredictability of customer demands and competitors' capabilities, as well as high rates of change in market trends and industry innovation (Dess and Beard, 1984, quoted by Tang, Tang, Zhang, and Li, 2007). On the other hand, we also prefer the term "dynamic capabilities" because it is associated with the ability to create, deploy, and protect the intangible assets that enable superior business performance in the long run (Teece, 2007).

Capabilities can be compared to Nelson and Winter's (1982) "organizational routines" in the sense that they are regular and predictable patterns of activity consisting of a sequence of related actions. A capability can be viewed as a routine or a set of routines which interact, being the organization a huge network of routines, in which are included the top management routines, where strategy formulation is embedded (Grant, 1991).

Routines have emerged from the evolutionary perspective of the economy, more precisely from Nelson and Winter (1982), who suggest routines to be the unit of analysis to understand economic change. As we consider the gene as the unit of analysis in biology, we should consider routines as the key concept to understand economic change and to explain change in the social domain, for example, to understand innovation, innovation diffusion, transfer of ('best') practices, and organizational learning (Becker, 2003).

Becker (2003, p. 664) defines routines as recurrent patterns of interaction that exist in an organization. Given their collective nature, routines are seen as the organizational equivalent of the individual habits and as coordinating the employees' skills. In this sense, routines are viewed as patterns (consisting of sequences of activities over a period of time), repetitive and persistent, collective, non-deliberative and self-actuating, of processual nature, context-dependent, embedded in an organization and in its structures, specific and path-dependent (Becker, 2003).

According to this scholar, as self-actuating, routines should be executed in an almost automatic way, so individuals who are acting do not devote to them a conscious or explicit attention. Because they are context-dependent, we can say that rules and procedures cannot be completely specified when we aim to transfer them to other contexts, precisely because contexts are also distinctive. This also implies there is a low chance that a routine can be replicated in a similar way[5]. On the other hand, because they are path-dependent, routines are developed in an incremental way, according to the starting point, adapting themselves as a response to the feedback relative to outcomes.

Because routines have turned into a central concept in strategic management, it is important to analyze the roles routines have in organizations. According to Becker

[5] An important implication of this difficulty of transferring routines to different contexts is that it is not possible that a universal 'best practice' exists (Amit e Belcourt, 1999). Thus, one can only conceive of 'best' local solutions.

(2003), routines have the following functions: coordinate and control, provide ‘truce’, economize on cognitive resources, reduce uncertainty, lead to inertia, provide stability and enable and constrain, act as triggers, and embody knowledge.

When we say that routines can coordinate and control, it is meant that routines provide instructions in the form of programs and contribute to order through the establishment of indifference zones. This way, coordination arrives because routines allow simultaneity of actions and, thus, they origin regularity, consistency and predictability (Becker, 2003).

As to routines providing ‘truce’, this does not mean that organizations work peacefully due to the inexistence of divergent interests, but it means that routines provide conformity, they provide a certain stability or armistice between employees and administration which allows routines to process without interference (Becker, 2003).

It is also said that routines allow economizing on cognitive resources in the way that as habits and routines become more automatic, mental resources and capacity to decision-making are released. Thus, these resources can be used in more complex decisions, while the repetitive decisions are relegated to the semi and subconscious. Besides, routines focus the attention in certain elements and guide research through experience (Becker, 2003).

As they free mental resources, the capacity to deal with complexity and uncertainty rises (Becker, 2003).

Frequently routines are interpreted as barriers to change, and thus, it is common the advice to break routines to allow change to happen. However, routines have a double role, because they can restrain change - for example, they can introduce dependence relative to the followed path as well as some cost rigidity - but also facilitate change - for instance, they can introduce specialization advantages and coherence (Foss, 1997). In the same way, organizational routines contribute to change but at the same time, to stability (which has an important role in learning because it allows comparison to happen, a crucial factor in the implementation of change).

Routines can be "propelled" (Nelson (1994) claims that routines arise when certain ways of doing things consistently produce satisfactory outcomes) but they can also "propel" other routines.

Nelson and Winter (1982) state that the routinization of activities in an organization is the most important means of storing specific operational knowledge, and is crucial in organizational learning. Thus, routines can incorporate tacit knowledge, i.e., when a solution to a problem is found (solution that will be available when someone encounters the same problem again) a routine becomes an option that emerges as "first guess".

Therefore, in what concerns strategic management, the concepts of dynamic capabilities and routines assume special significance, because they explain change through the accumulated knowledge of the organization.

Till now, we have been treating RBV and DC as separate schools, but there is also a claim for an integrative perspective of the RBV and the dynamic capabilities approach, as stated by Wilkens, Menzel, and Pawlowski (2004), since the inherent processes cannot easily be differentiated and this integration is more evident in empirical analysis, where core competencies and dynamic capabilities are frequently used interchangeably (Mahoney, 1995; Makadok, 2001; Ray, Barney, and Muhanna, 2004; Rouse and Daellenbach, 1999).

Besides, RBV is concerned not only with existing resources but also with the development of the firm's resource base, which is linked with the ability of the firm to continually innovate (Grant, 1991). Thus, more than identify the firm's current competencies, capabilities imply a commitment to change (Prahalad and Hamel, 1990) and an emphasis on the future. This idea is also present in Itami's (1986) "dynamic resource fit" when it is advocated that when a firm pursues its current strategy it is developing the required capacity for its future strategy. We build on the dynamic capabilities' approach in the next section.

Finally, the **fifth** school states that a firm can reach a competitive advantage through the possession of more relevant knowledge than its competitors (Inkpen, 1998; Zach, 1999). Knowledge can be classified according to several criteria. Here, following Cater and

Pucko (2006), we only mention the most cited classifications. The first one divides the intellectual capital of a firm into human and structural capital (Edvinsson, 1997; Edvinsson and Malone, 1997). Human capital is based on the employees' knowledge and skills and cannot be the property of a firm. Structural capital is the property of a firm and can therefore be traded, so one of the objectives of the firm is to transform human capital into structural capital (Lank, 1997). The second classification distinguishes between explicit and tacit knowledge (Nonaka and Takeuchi, 1995; Teece, 1998). Although different, these types of knowledge are complementary because they interact one with the other and it is this continuous and dynamic interaction that allows the creation and expansion of organizational knowledge. Since tacit knowledge is not as easily copied by competitors as explicit knowledge, it is considered a more relevant source of competitive advantage (Leonard and Sensiper, 1998; McAulay, Russell, and Sims, 1997).

In recent years, organizations begun to be considered as sources of knowledge creation (Nonaka, Umemoto, and Senoo, 1996) and learning has become a key construct in strategic management, and thus the creation and transfer of knowledge (Argote and Ingram, 2000) as well as organizational learning (Spender and Grant, 1996) started to be considered as sources of competitive advantage. Given the growing importance of intellectual capital, there is a claim for knowledge management in organizations, focusing on the systematic analysis, planning, accumulation, creation, developing, archiving and exploitation of a firm's knowledge, which is a competence of a firm's top management (Cater, 2001).

Nonaka and Takeuchi's (1995) theory of knowledge-creating companies has generated a large stream of research but it has also been subject of many criticisms. For example, Poell and Van der Krogt (2003) argue that Nonaka and Takeuchi's (1995) theory assumes that workers will learn only within the boundaries set by management, which is not necessarily true given that workers organize much of their learning themselves.

The four paradigms of strategy identified by Teece, Pisano, and Shuen (1997) can be summarized as follows. The fifth one, relative to the knowledge-based school, is not included in the summary proposed by this scholar, reason why it is not included in the following table.

Table 1 – Paradigms of strategy: salient characteristics

Paradigm	Intellectual roots	Representative authors addressing strategic management questions	Nature of rents	Rationality assumptions of managers	Fundamental units of analysis	Short-run capacity for strategic reorientation	Role of industrial structure	Focal concern
Attenuating competitive forces	Mason, Bain	Porter (1980)	Chamber lainean (a)	Rational	Industries, firms, products	High	Exogenous	Structural conditions and competitor positioning
Strategic conflict	Machiavelli, Schelling, Cournot, Nash, Harsanyi, Shapiro	Ghemawat (1986) Shapiro (1989) Branderburger and Nalebuff (1996)	Chamber lainean (a)	Hyper-rational	Firms, products	Often infinite	Endogenous	Strategic interactions
Resource-based perspectives	Penrose, Selznick, Christensen, Andrews	Rumelt (1984) Chandler (1966) Wernerfelt (1984) Teece (1980, 1982)	Ricar dian (b)	Rational	Resources	Low	Endogenous	Asset fungibility
Dynamic capabilities perspective	Schumpeter, Nelson, Winter, Teece	Dosi, Teece and Winter (1989) Prahalad and Hamel (1990) Hayes and Wheelwright (1984) Dierickx and Cool (1989) Porter (1990)	Schumpe terian (c)	Rational	Processes, positions, paths	Low	Endogenous	Asset accumulation, replicability and inimitability

Source: Teece, Pisano, and Shuen (1997, p. 527).
(a) Rents flow from tactics which deter entry and keep competitors off balance.
(b) Rents flow from unique firm-specific assets that cannot readily be replicated.
(c) Rents flow from innovation.

We should also mention that as a compromise between the industry level of analysis and the firm or business level of analysis, the strategic group level of analysis arised. This compromise did not emerge chronologically, since strategic group theory preceded the emergence of resource-based school and succeeded industrial organization school (Parnell and Hershey, 2005). However, as it identifies clusters of businesses employing similar strategies, many strategic group researchers began to utilize approaches believed to be generalizable across industries. This is the case of Porter's (1980) and Miles and Snow's (1978, 1986) strategy typologies, as noted by Parnell and Hershey (2005).

II.4 The dynamic capabilities approach and competitiveness

The concept of DC has emerged from RBV since the original proposal stating that firm's capabilities were sources of competitive advantage did not remain true for firms operating in turbulent environments (Wang and Ahmed, 2007) or in high-technology industries such as semiconductors, information services, and software (Teece, Pisano, and Shuen*,* 1997). This approach is seen as an emerging and potentially integrative approach and, as with RBV, its roots also lie in the efficiency-based approach (Teece, Pisano, and Shuen*,* 1997).

Elements of the DC approach can be found in Schumpeter (1934, 1942), Penrose (1959), Teece (1976, 1986a, 1986b, 1988), Nelson and Winter (1982), Hayes, Wheelwright, and Clark (1988), Chandler (1990), Prahalad and Hamel (1990), Day (1994), Teece and Pisano (1994), Eisenhardt and Martin (2000), Zahra and George (2002), Zollo and Winter (2002), Zott (2003), Zahra, Sapienza, and Davidsson (2006), Augier and Teece (2007), and Wang and Ahmed (2007), just to mention the more relevant studies. Teece, Pisano, and Shuen (1997, p. 515) write that "the term 'dynamic' refers to the capacity to renew competencies so as to achieve congruence with the changing business environment [and] the term 'capabilities' emphasizes the key role of strategic management in appropriately adapting, integrating and reconfiguring internal and external organizational skills, resources, and functional competencies to match the requirements of a changing environment".

After Teece, Pisano, and Shuen (1997, p. 516) defined DC as "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments", Eisenhardt and Martin (2000, p.1107) defined them as "the firm's processes that use resources – specifically the processes to integrate, reconfigure, gain and release resources – to match and even create market change". According to Eisenhardt and Martin (2000), DC consist of specific strategic and organizational processes like product development, alliancing, and strategic decision-making that create value for firms, because managers make use of their expertise to make the choices that mould the strategy of the firm (Eisenhardt and Martin, 2000).

According to Teece, Pisano, and Shuen (1997), the DC of the firm and its competitive advantage can be explained by distinctive organizational processes, shaped by the firm's specific asset positions and moulded by its paths, as long as the competencies are based on a collection of routines, skills and complementary assets that are difficult to imitate or emulate[6]. In their view, organizational processes, asset positions and paths are the key elements to explain competitive advantage. What do these concepts mean? In short, organizational processes can be seen as the way things are done in the firm, or its routines or patterns of current practice and learning. Positions are conceptualized as a firm's current specific assets with regard to technology, intellectual property, complementary assets, customer base, and its external relations. Paths are the strategic alternatives available to the firm, and the presence or absence of increasing returns and attendant path dependencies (Teece, Pisano, and Shuen*,* 1997)[7].

In a Penrosean's world, routines and processes can be seen as providing underutilized capacity that management can leverage for growth (Augier and Teece, 2007). Needless to say, competencies and capabilities, and the underlying routines, are generally rather difficult to replicate. First of all, as Teece, Pisano, and Shuen (1997) argue, this happens because many organizational routines are quite tacit in nature and a change in one set of routines in one part of the firm may require changes in other parts (Nelson and Winter, 1982; Teece, 1982). Therefore, distinctive competencies and capabilities cannot be acquired, but instead they must be built. Another consequence of this perspective is that strategy involves choosing among long-term paths or trajectories of competence development (Teece, Pisano, and Shuen*,* 1997).

So, the challenge that managers face is to harmonize innovative aspects of strategy with resources, capabilities and organizational routines that already existed, due to preceding strategic options. Thus, innovation must somehow play a part in distinctive competencies and SOs of the firm. A SO is defined as a firm's strategic direction to create appropriate behaviours to interact with the market, which results in superior performance (Gatignon & Xuereb, 1997; Narver and Slater, 1990). Several SOs are

---

[6] Imitation occurs when firms copy a firm's organizational routines. Emulation occurs when firms discover alternative ways of achieving the same functionality (Teece, Pisano, and Shuen*,* 1997).

[7] As Teece, Pisano and Shuen (1997) emphasize, the notion of path dependencies recognizes that "history matters", because where a firm can go is a function of its current position and the paths ahead, and its current position is often shaped by the path it has travelled.

mentioned in the literature, namely market orientation (hereafter referred to as MO), technology (or innovation) orientation, entrepreneurial orientation (hereafter referred to as EO), production orientation, selling orientation, learning orientation (hereafter referred to as LO), and employee orientation.

The existence of DC implies that a firm has the ability to perceive changing customer needs, technological opportunities, and competitive movements, but more than that, it has the ability to adapt to and shape the business environment in a proactive manner (Augier and Teece, 2007), that is, the firm has the ability to strategize (Teece, 1998; Zott, 2003).

DC and learning are closely linked, because DC are developed through learning mechanisms, which continually shape the firm's organizational competencies (Teece and Pisano, 1994; Zollo and Winter, 2002) and they allow a firm to assimilate new knowledge from their business environment, and configure their knowledge sets, operating routines, and organizational competencies to meet the new market needs (Zahra and George, 2002).

Firm's capabilities are, in fact, enhanced by individual and team members who develop routines, where top management can also have an important role, because they can have a strategic focus on the effective use of a firm's core resources and capabilities. Organizational capabilities are not only observable in corporate structures and processes, but also reside in the corporate culture and the network of relations between employees (Teece, 1982).

The most important contribute of DC for competitive advantage does not lie in the capabilities themselves, but in the resource configurations that managers create in order to obtain strategic fit with the environment conditions and/or to create market changes (Eisenhardt and Martin, 2000). This way, DC are necessary, but not sufficient, conditions for competitive advantage. Hills and Sarin (2001) refer that, according to Day (1994), competitive advantage can be achieved by developing three key capabilities, namely product leadership (i.e., the ability to continuously innovate), operations expertise (i.e., the ability to minimize internal costs and manage the relationships with customers and partners), and deep knowledge about the customers (i.e., the ability to adequate the firms offerings to meet customers preferences). As we can see, these capabilities are intimately related to SOs, namely EO, production orientation, and MO.

According to Wang and Ahmed (2007), DC are a high order construct, consisting of different components, namely absorptive, adaptive, and innovative capability. While **absorptive capability** allows firms to identify and use external knowledge for commercial purposes (Cohen and Levinthal, 1990), **adaptive capability** is a firm's ability to quickly identify and seize emerging market opportunities (Oktemgil and Greenley, 1996), and **innovative capability** allows a firm to develop new products or processes (Wang and Ahmed, 2007).

Another component has been added to these three in a recent study (Parida, 2007), namely **networking capability**. Networking capability is conceptualized as a multidimensional construct and it consists of four components, namely coordination, relational skills, partner knowledge, and internal communication (Walter, Auer, and Ritter, 2006). According to Teece (2007), collaborating with firms and other organizations leads to the development of DC.

Though DC might influence a firm's performance, this is not a direct link, in the way that the relation between DC and performance is influenced by the strategic organization or actions of the firm (Zahra, Sapienza, and Davidsson, 2006).

Effective patterns of DC vary with market dynamics (Eisenhardt and Martin, 2000), such that in moderately-dynamic markets they are similar to routines, as they are complicated, detailed, analytic, and linear, whereas in highly-dynamic markets, DC are simple, experiential, unstable, and iterative. DC are especially relevant in a Schumpeterian world of innovation-based competition (Teece, Pisano, and Shuen, 1997) and, from this perspective, DC enable the co-evolution of firms and markets (Chandler, 1990). Thus, Schumpeterian rents, which emerge due to DC, have the possibility of being sustained indefinitely so long as the DC is maintained. Also, the long-term competitive advantage lies in using DC sooner, more astutely, or more fortuitously than the competition (Eisenhardt and Martin, 2000).

DC are also crucial in nowadays' business context, where a major trend in innovation strategies is open innovation, meaning that firms open up their innovation processes to customers, suppliers, competitors, universities, and research institutes, among others, relying more on outside innovation (De Backer, López-Bassols, and Martinez, 2008). In this new open innovation model, with a more dynamic and less linear approach (Chesbrough, 2003, 2006), knowledge assets have a fundamental role, so here too the firm must possess DC both to look inside-out and outside-in. Collaboration in innovation exists both in manufacturing and in services, with chemicals, pharmaceuticals, and ICT revealing higher levels of open innovation (De Backer, López-Bassols, and Martinez, 2008).

II.5 What is a strategic orientation; typologies to analyze the competitive strategy of the firm

One of the most referenced and promising constructs in recent strategic management literature is that of SO. It is defined as a firm's strategic direction to create proper behaviours to interact with the market (Gatignon and Xuereb, 1997; Narver and Slater, 1990), but there are several other definitions, and we cannot say there is a consensus about the nature of the concept. Morgan and Strong (1998) write that this concept has variously been described as strategic orientation, strategic fit, strategic predisposition, strategic thrust, and strategic choice.

In our review of the literature to identify which typologies are used to analyze the competitive strategy of the firm, we found several other typologies beyond SO. We came to the conclusion that in the strategic management literature, many studies use Miles and Snow's (1978) typology to conceptualize SO in terms of Reactors, Defenders, Analyzers and Prospectors. In addition to Miles and Snow's (1978), we found several other typologies to analyze the competitive strategy of the firm, being the most popular ones Mintzberg's (1973), and Porter's (1980).

After the enunciation of Porter's generic strategies typology, Mintzberg (1988) proposed an alternative typology identifying six generic strategies, taking into consideration the increased complexity of the corporate environment. Scholars such as

Kotha, Dunbar, and Bird (1995), Kotha and Vadlamani (1995) and Parnell and Hershey (2005) tried to establish joint typologies by integrating the typologies mentioned before. Other typologies can be named, such as the ones defined by Buzzell, Gale, and Sultan (1975), Hofer and Schendel (1978), Vesper (1979), Wissema, Van Der Pol, and Messer (1980), Miles (1982) and Galbraith and Schendel (1983).

The existence of such a great number of typologies can be criticized but this profusion can be explained by the subjective nature of the typologies, which determines what strategic factors are considered. According to Hambrick (1984) and Snow and Miles (1983), the preponderant factors in the development of strategy typologies are the knowledge that the researcher possesses, his intuition and his experience. So it is understandable that typologies are difficult to replicate empirically and tend to be rather simplistic and imprecise focusing on extreme or suggestive configurations (Zahra and Pearce, 1990).

The most known classifications of the generic strategies in the strategic management literature are the ones that we present in the following table.

Table 2 – Classification of generic strategies

Scholar(s)	Factors in which the classification is based	Strategy Types
Mintzberg (1973)	Process of strategy-making	Entrepreneurial Adaptive Planning
Miles and Snow (1978)	Modes to face the problems: entrepreneurial, engineering and administrative problems	Prospector Analyser Defender Reactor
Porter (1980)	Source of competitive advantage, market scope	Cost leadership Differentiation Focus

Source: Prepared by the author.

Mintzberg (1973) states that the ways by which organizations make important decisions and link them together to form strategies can be grouped in three modes: entrepreneurial, adaptive and planning. In the entrepreneurial mode, the organization perceives the environment as a force to be confronted and controlled. In the adaptive mode, strategy formulation reflects a division of power among members of a complex organization. Thus, in this adaptive mode there is a “reactive” solution to existing problems rather than a “proactive” search for new opportunities. Finally, in the planning mode[8], decisions and strategies are integrated and, because of this, the organization is forced to think of global strategies and to have a sense of strategic direction. Therefore, the planning mode focuses on systematic analysis and one of its assumptions is that formal analysis can provide an understanding of the environment which in turn can be sufficient to influence that same environment.

In spite of identifying these three modes, Mintzberg (1973) arguments that few organizations can rely on a pure mode and generally an organization will find some combination of the three modes. It's understandable, thus, that Mintzberg writes that planning is not a panacea for the problems of strategy-making and the mode used must fit the situation. For example, an unpredictable environment suggests use of the adaptive mode, the presence of a powerful leader may lead to the entrepreneurial mode and often the planning mode can be used when mixed with the others.

Mintzberg (1973) also recognizes that it is often necessary to redesign the formal planning process, i.e., to use an "adaptive planning" where plans are flexible and only establish end points and eventually alternate paths, leaving the manager with flexibility to react to the environment.

The characteristics of Mintzberg's three modes of strategy-making are summarized in the following table.

Table 3 - Mintzberg's modes of strategy-making

Characteristic	Entrepreneurial Mode	Adaptive Mode	Planning Mode
Motive for Decisions	Proactive	Reactive	Proactive and Reactive
Goals of Organization	Growth	Indeterminate	Efficiency and Growth
Evaluation of Proposals	Judgemental	Judgemental	Analytical
Choices made by	Entrepreneur	Bargaining	Management
Decision Horizon	Long Term	Short Term	Long Term
Preferred Environment	Uncertainty	Certainty	Risk
Decision Linkages	Loosely Coupled	Disjointed	Integrated

[8] According to Ackoff (1970), quoted by Mintzberg (1973), planning is something we do in advance of taking action, i.e., it is anticipatory decision-making.

Flexibility of Mode	Flexible	Adaptive	Constrained
Size of Moves	Bold Decisions	Incremental Steps	Global Strategies
Vision of Direction	General	None	Specific
Condition for Use Source of Power	Entrepreneur	Divided	Management
Objectives of Organization	Operational	Non-Operational	Operational
Organizational Environment	Yielding	Complex, Dynamic	Predictable, Stable
Status of Organization	Young, Small or Strong Leadership	Established	Large

Source: Mintzberg (1973, p. 49).

Another well-known typology is **Miles and Snow**'s (1978). They state that four SOs can be identified being the fundamental difference among them the change and adaptation that occurs in the organizational domain. Thus, firms can be classified as Defenders, Prospectors, Analyzers and Reactors.

Defenders concentrate on a narrow domain by controlling premium niches in their industries, make little or no product/market development, seldom make adjustments on their technology, structure or operation methods and stress efficiency of operations.

Prospectors lie on the other extreme of the continuum, constantly seeking new opportunities, stressing product development and possessing flexible technologies, thus creating change and uncertainty, to which its competitors must respond.

Analyzers combine characteristics of the two types mentioned before, operating in two types of products/markets, i.e., they act in a stable domain where they behave as Defenders, and act in a dynamic domain, where they behave as Prospectors. Their organizational structures and processes are, therefore, a combination of what we observe in Defenders and Prospectors.

As to Reactors, they do not follow a conscious strategy and are viewed as a dysfunctional organizational type. Because Reactors lack a coherent strategy they will be surpassed by the other three strategic types.

Miles and Snow's (1978) typology is based on how firms face entrepreneurial, engineering and administrative problems. The organization is seen as a cohesive and integrated system interacting with its environment, and organizational effectiveness lies mainly in top management's perceptions of environmental conditions and their decisions related to how to cope with these conditions. This dynamic process, named "adaptive cycle", involves decision-making in the three domains mentioned before: entrepreneurial problems (that deal with the definition of market-product domain), engineering problems (involving the organization's technical system, namely the choice of production and distribution technologies) and administrative problems (arising from structure and process issues that aim to rationalize and stabilize organizational activities).

Thus, the three mentioned types (excluding Reactors) can be equally efficient. According to theory, performance will be higher in firms dealing with the three types of problems in a manner that ensures internal consistency between the elements of the adaptive cycle. As to the Reactors, it refers to firms whose managers are not able to define a clear strategy, firms where it is difficult to shape its structure and/or processes to fit a chosen strategy, or organizations where there is an attempt to maintain the organization's structure-strategy relationship despite great changes in the environment.

Miles and Snow's (1978) typology has been validated through various theoretical and empirical studies (Shortell and Zajac, 1990). However, according to Zahra and Pearce (1990), the operationalization of Miles and Snow's (1978) strategic types have often been inadequate, partly because the majority of the researchers collected data from one informant only and identified the strategic types only based on these restrict data, which can be questioned because of the complexity of the strategy construct (Ginsberg, 1984; Venkatraman and Grant, 1986).

Although the notion that strategy can be generic is not new (Ansoff, 1965), it was **Porter** (1980) who articulated a set of three generic strategies and developed them into a testable typology (Kotha and Vadlamani, 1995). According to Porter, a business can maximize performance either by trying to be the low cost producer in an industry or by differentiating its line of products or services; either of these two approaches can be developed in a wider market or focused on a given segment of the market. According to

Porter (1980, 1985), competitive advantage results from the value (i.e, what consumers are willing to pay) created by a firm that exceeds fabrication cost. Thus, superior value arises from having lower prices for the same benefits, when compared to the competitors, or from having unique benefits which allow to establish a higher price.

The incompatibility of assumptions associated with low cost and differentiation[9] has been one of the main critiques to Porter's typology, as several studies (Buzzell and Gale, 1987; Buzzell and Wiersema, 1981; Hall, 1983; Hill, 1988; Murray, 1988; Parnell, 1997; Phillips, Chang, and Buzzell, 1983; Proff, 2000; White, 1986; Wright, 1987) have concluded that the "combination strategy" may create synergies that overcome any associated trade offs.

On the other hand, Kotha and Vadlamani (1995) write that several researchers have found empirical support for the existence of Porter's generic strategies. For example, Miller and Friesen (1986) found empirical support for Porter's dimensions of low cost, differentiation and focus. Dess and Davis (1984) established the construct validity of Porter's typology and this study was later replicated by Robinson and Pearce (1988).

After Porter's enunciation of generic strategies typology, Mintzberg (1988) proposed an alternate typology identifying six generic strategies, which considers the increased complexity of the corporate environment. Mintzberg began by distinguishing focus from differentiation and cost leadership. On the other hand, he designates Porter's cost leadership strategy as differentiation by price, arguing that cost leadership does not provide an advantage by itself and that it only becomes a competitive advantage if it results in below average market prices.

Therefore, beyond differentiation by price (charging a lower price for a product or service), Mintzberg indicates other five strategies, because he disaggregates Porter's differentiation strategy into differentiation by marketing image, product design, quality, support, and undifferentiation. Relative to this last strategy we ought to explain that Mintzberg considers that having no basis for differentiation is a strategy, although this can exist only if there is a "hole", i.e., a non filled space in the market.

---

[9] That leads to what Porter designates as "stuck in the middle".

Kotha and Vadlamani (1995) found strong support for the six Mintzberg's generic strategies and concluded that Mintzberg's typology is better than Porter's typology in its conceptual clarity and descriptive power. However, this does not invalidate the use of Porter's typology, which also has advantages, namely its simplicity and the fact that Porter's generic strategies are well accepted and operationalized in the literature (Kotha and Vadlamani, 1995).

As we have seen, there are several typologies intended to analyze the competitive strategy of the firm and there is still no consensus about the fact of only existing "pure" strategies (low cost *or* differentiation) or also existing "combination" strategies (low cost *and* differentiation). Some studies, cited in Parnell and Hershey (2005), concluded that only "pure" strategies are associated with superior performance (Dess and Davis, 1984; Hambrick, 1981, 1982; Hawes and Crittendon, 1984); other studies arrived to the conclusion that, over the long run, "combination" strategies are not only viable but also frequently associated with superior performance (Buzzel and Gale, 1987; Hill, 1988; Murray, 1988; Parnell and Wright, 1993; Philips, Chang, and Buzzell, 1983; White, 1986; Wright, 1987; Yeung, Selen, Sum, and Huo, 2006). Till now, no consensus has yet emerged (Parnell and Hershey, 2005).

II.6 How can strategic orientation be operationalized

In our present study, we chose to rely on the concept of SO to operationalize the strategy of the firm, bearing in mind that the definition of SO enables us to consider that a firm may possess several SOs. Two main streams of research have operationalized SO: strategic management and strategic marketing. The strategic management literature usually relies on the typologies mentioned in the previous section to conceptualize SO, whereas the strategic marketing literature stresses MO, originally developed by Kohli and Jaworski (1990) and Narver and Slater (1990) and further refined by Gatignon and Xuereb (1997), Noble, Sinha, and Kumar (2002), Zhou, Yim, and Tse (2005), among others. Slater and Narver (1999, p. 1167) argue, though, that the study of MO "is in the domain of strategy scholars as much as it is of marketing scholars".

Beyond MO, in our review of the literature about SOs we found the following constructs: technology orientation, entrepreneurial orientation, production orientation, selling orientation, learning orientation, and employee orientation.

Most studies focus on MO, EO, and technology orientation, which stress market effectiveness, but some studies show that production and selling orientations, which stress operational efficiency, may also lead to competitive advantage (Noble, Sinha, and Kumar, 2002). Recently, several studies examined LO and its relationship with firm performance (Argyris and Schon, 1978; Baker and Sinkula, 1999b; Hult, Nichols, Giunipero, and Hurley, 2000; McCann, 1991; Nevis, DiBella, and Gould, 1995; Slater and Narver, 1995; Zahra, Ireland, and Hitt, 2000). Also in recent years, some studies examined employee orientation and its relationship with firm performance (Fritz, 1996; Harris and Ogbonna, 2001; Pfeffer and Veiga, 1999; Ruekert, 1992).

Most of the research studies examine the relationships between two SOs. Just to mention a few, Miles and Arnold (1991) and Zahra (2008) examined the interrelationship of MO and EO, Pelham (2000) compared MO with production orientation, Baker and Sinkula (1999a, 1999b) and Farrell (2000) studied the link between MO and LO, Gatignon and Xuereb (1997) examined MO and its relation with technology orientation. Other studies integrate more than two SOs[10]. Next, we present the definitions of each one of the mentioned SOs.

Market orientation is defined as an aspect of corporate culture that stresses superior and profitable customer value creation and maintenance (Narver and Slater, 1990) and, thus, it is regarded as a relatively immutable attribute of the firm. Others conceptualize it as a matter of choice and resource allocation and therefore relatively mutable (Ruekert, 1992). MO includes two dimensions: customer and competitor orientations. The first emphasizes the role of understanding one's target customers, while the latter focuses on monitoring and responding to competitors' strategic moves promptly, based on an exhaustive understanding of their strengths and weaknesses (Narver and Slater, 1990). Although there have been many studies that view MO as the main determinant of

[10] A synthesis of the research studies about SOs can be found in II.9.

firm performance, especially in the marketing literature, currently it is suggested that MO is a necessary, but not sufficient condition (Jaworski, Kohli, and Sahay, 2000; Zahra, 2008) for ensuring long-term success.

As to **technology** (or innovation or product) **orientation**, it holds that consumers prefer technologically superior products and services and that a technological-oriented firm is opened to new ideas, has a high propensity to adopt new technologies, and advocates a commitment to R&D (Gatignon and Xuereb, 1997; Hurley and Hult, 1998). Technological-oriented firms invest heavily in discontinuous innovations and disruptive technologies, assuming that this will open new markets, and these firms intentionally distance themselves from current customers, so they do not generally develop a MO (Berthon, Hulbert, and Pitt, 2004; Hunt and Morgan, 1996).

An **entrepreneurial orientation** promotes product market innovation, risk-taking and proactiveness, being especially important in dynamic markets where the rate of change is greater. EO is closely related to finding and taking advantage of opportunities.

In what concerns **production orientation,** a firm is considered to follow this direction when its main concern is to improve its production efficiency, minimize costs, and develop mass distribution to achieve competitive advantage (Fritz, 1996; Noble, Sinha, and Kumar, 2002). It focus on low production costs, and therefore on cheap products, which can mean there is an underlying trade off, as production orientation may imply a reduction in the firm's ability to innovate, in the enhancement of product quality, or in the maximization of customer satisfaction (Kotler, 2000).

Although also stressing efficiency, a **selling orientation** focus on aggressive sales and marketing efforts to maximize market share and fast returns (Noble, Sinha, and Kumar*,* 2002), focusing in the short-run at the possible expense of long-term relationship building (Lamb, Hair, and McDaniel, 2000). This approach is often chosen for "unsought goods" that consumers do not normally search for, e.g., encyclopedias, insurance, and funeral plots (Kotler, 2000), and from the perspective of value generation it is not a good solution since it offers little to the consumer and it may even harm customer loyalty and have a negative effect on repeated sales (Noble, Sinha, and Kumar*,* 2002).

A **learning orientation** is defined as the degree to which the organization values knowledge, is open-minded, and has a shared vision (Sinkula, Baker, and Noordewier, 1997), which promotes receptivity to innovation, since firms with strong LOs learn from their successes and mistakes through experience. According to Cohen and Levinthal (1990), innovation is related to learning and is dependent upon the organization's knowledge base (Salavou, Baltas, and Lioukas, 2004). This can also be analyzed in a broader context because, in a knowledge-based economy, innovation is seen as the result of dynamic interaction and learning processes and, as such, innovation can be better understood in its institutional and cultural context (Lundvall, 1992).

Employee orientation is defined as a firm's focus on human resources, where the employees' well-being and satisfaction are prioritized over other stakeholders. The main assumption of this orientation is that satisfied, motivated and committed employees lead to satisfied customers, which in turn will increase the firms' revenues (Fritz, 1996; Harris and Ogbonna, 2001; Pfeffer and Veiga, 1999; Ruekert, 1992). Employee-oriented firms are characterized by decentralized decision-making processes, investment in employees' development, and delegation of responsibility.

Several studies established a link between SO and firm performance, where SO is frequently seen as a key antecedent to superior performance (Davies and Ko, 2006; Day, 1994; Gao, Zhou, and Yim, 2007; Lukas, Tan, and Hult, 2001; Luo and Park, 2001; Pleshko and Nickerson, 2008; Tan and Tan, 2005) as well as between some of the dimensions of SO and firm performance (e.g., Deshpandé and Farley, 2000, 2004; Deshpandé, Farley, and Bowman, 2004; Jeong, Pae, and Zhou, 2006; Li, 2005; Liu, Luo, and Shi, 2002; Luo, Sivakumar, and Liu, 2005; Luo, Zhou, and Liu, 2005).

Most studies examine the direct effects of SO on performance but in recent years there has been a claim that more effort should be placed on the process by which SO affects performance and not only in the direct effects (Zhou, Yim, and Tse, 2005). Hoskisson, Eden, Lau, and Wright (2000), for instance, encourage future researchers to investigate mediating mechanisms from two perspectives: dynamic capabilities and the knowledge-based view. Till now, three sets of mediating variables have been pointed out, namely competence development, organizational learning and innovation.

With respect to organizational capabilities, Han, Kim, and Srivastava (1998) conceptualize an indirect relation between SO (which is defined as a market-oriented culture) and firm performance, and state that organizational capabilities mediate the relationship between SO and firm performance. Other scholars argue that if managed correctly capabilities could lead to superior performance (Barney, 1991; Barney, Wright, and Ketchen, 2001). Teece, Pisano, and Shuen (1997) argue that because SO provides guidance for how a firm should use its resources and interact with environmental forces, it necessarily affects the firm's capabilities to manage environmental dynamics and transform resources into superior performance.

When analyzing the various SOs, we came to the conclusion that there is a commonality between them, namely innovativeness, as well as the firm's ability to anticipate, identify and benefit from market changes and opportunities. Scholars have recognized that innovation and strategy are related in what concerns the efforts to create sustainable competitive advantage (Cahill, 1998; Ettlie, Bridges, and O'Keefe*,* 1984; Ireland, Hitt, Camp, and Sexton*,* 2001; Knott, 2003; Mone, McKinley, and Barker, 1998; O'Brien, 2003). Thus, competitive strategy of the firm is seen as a predictor of innovation, i.e., an independent variable of innovation[11] in several studies, namely Ettlie (1983), Ettlie, Bridges, and O'Keefe (1984), Hambrick (1983), Hambrick, MacMillan, and Barbosa (1983), and Kotabe (1990). If we take RBV as our framework, innovation creates distinctive competencies and, as such, is a source of competitive advantage, as we can observe in the studies of Abetti (1991), Barney (1986), Ford (1985), Grant (1991), Peteraf (1993), and Wernerfelt (1984, 1995).

In spite of the literature on innovation being extensive, the fact is organizations still face problems to effectively innovate (Dougherty, 1992; Storey, 2000). One of the reasons for this situation is the fact that companies develop tendencies to rigidity and inertia that limit creativity and learning (Dougherty, 1992). An alternative perspective states that

[11] Depending on the context, an independent variable is also known as a predictor variable, regressor, controlled variable, manipulated variable, explanatory variable, exposure variable, or input variable. A dependent variable is also known as a response variable, regressand, measured variable, observed variable, responding variable, explained variable, outcome variable, experimental variable, or output variable (Dodge, 2003).

rigidity and inertia are not necessarily inherent to organizations and managers can effectively manage innovation (Christensen and Raynor, 2003; Hamel, 2000).

II.7 Combining strategic orientations and dynamic capabilities in order to explain firm's competitiveness

In the present study, we intend to explore the link between SOs of the firm and its performance. As we have seen before, several studies explain the sources of competitive advantage of the firm, and these can be internal or external sources, which lead to higher performance. Here we are assuming that, although both internal and external events are crucial for the strategic direction of the firm, the prevailing factors are internal, in the sense that the firm must possess capabilities that enable it to adapt to the constantly changing environment. In fact, the term 'capabilities' emphasizes "the key role of strategic management in appropriately adapting, integrating and reconfiguring internal and external organizational skills, resources, and functional competencies to match the requirements of a changing environment" (Teece, Pisano, and Shuen (1997, p.14). As mentioned previously (see II.2), several studies show that both internal and external sources of competitive advantage have a statistically significant influence on a firm's performance (Spanos and Lioukas, 2001), though internal sources seem to be more important.

In fact, the strategic literature has stressed several internal factors (intangible resources and capabilities) as determinants of business competitiveness, with some scholars focusing on how these resources and capabilities determine the strategic process of the firm (e.g., Barney, 1995), and others focusing on how the SO of the firm influences the way the firm manages its resources and capabilities (e.g., Slater and Narver, 1993).

II.8 Main conclusions and gaps identified in the review of the literature

We propose to integrate EO (which includes three dimensions, namely innovativeness, proactiveness and risk-taking) with MO (which includes customer orientation and competitor orientation) and LO, and explain their link with dynamic capabilities and firm performance. In our view, the study of these constructs under an integrative approach, joining alternative SOs into a single study, should result in findings that may advance knowledge in this area. To our best knowledge, this is the first study to examine these relationships under an integrative approach.

Most studies examine the direct effects of SO on performance and only recently researchers started recommending that more attention should be directed to the process by which SO affects performance and not only to the direct effects (Zhou, Yim, and Tse, 2005). Others encourage future researchers to investigate mediating mechanisms from new perspectives, namely dynamic capabilities and the knowledge-based view (Hoskisson, Eden, Lau, and Wright, 2000). We intend to integrate these recommendations in the present study.

In the current research study we chose not to include technology orientation, because this concept is based on technologically superior products and services, and our study focuses on Knowledge Intensive Business Services, where the mode of learning and innovation consists of "doing, using and interacting", which is based on know-how that comes mainly from experience, rather than relying on the production and use of codified scientific and technological knowledge (Jensen, Johnson, Lorenz, and Lundvall, 2007). Besides, the concept of technology orientation is mainly based on the products or services' attributes, a restrictive view of innovation because since 2005 the Oslo Manual considers not only technological innovation but also marketing and organizational innovation. All the more, innovation in services is more likely to be oriented towards organizational change, than to product or process innovation (Leiponen, 2001; Tether, 2005).

In fact, the Oslo Manual, currently in its 3rd edition, developed by Eurostat and the OECD, defines innovation as "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations." It thus identifies four types of innovations, namely product, process, marketing, and organizational innovation (OECD, 2005, p. 46).

According to OECD (2005), a product innovation is defined as the market introduction of a new good or service or a significantly improved one in what concerns its capabilities, where the newness refers to the firm and not to the market or sector. A process innovation is considered as the implementation of a new or significantly improved production process, distribution method, or support activity for the commercialized goods or services. An organizational innovation is the implementation of new or significant changes in firm structure or management methods intended to improve the firm's use of knowledge, the quality of goods or services, or the efficiency of work flows. A marketing innovation is defined as the implementation of new or significantly improved designs or sales methods intended to increase the appeal of the firm's goods or services or to enter new markets.

We also chose not to include production orientation, which in our view is more applicable to industrial firms than to service firms, since this approach is mainly concerned with production efficiency, costs minimization, and mass distribution. Thus, we did not consider it relevant in the context of KIBS.

Selling orientation is often chosen for "unsought goods" that consumers do not normally search for, e.g., encyclopedias, insurance, and funeral plots (Kotler, 2000), which is not the case for KIBS, reason why we did not include this orientation either in our model.

Finally, employee orientation was not included in our present study, mainly for reasons of parsimony and because it focus on organizational processes, such as decentralized decision-making processes, investment in employees' development, and delegation of responsibility, which would oblige us to explore other assumptions of the origin of satisfied customers, besides those included in the present SOs, and would lead us to explore other lines of investigation, moving us away from our focus.

In conclusion, we mainly rely on the SOs that stress market effectiveness, instead of those which stress operational efficiency, and they represent not only unique resources that the firm must possess, but also an evolutionary perspective of the intangible assets that enhance a continuous ability to innovate, thus leading to competitive advantage. DC imply that a firm has a proactive attitude to sense needs, opportunities, and competitive developments, but also the ability to adapt to the business environment, and even shape it (Augier and Teece, 2007), which calls the attention for the role of knowledge in the creation of competitive advantage.

As Augier and Teece (2007) point out, dynamic capabilities are resident in a firm's processes and routines as well as within the firm's top management team. Thus, when a firm's capabilities are guided through appropriate strategies, this can lead to better performance (Day, 1994; Grant, 1991; Slater, Olson, and Hult, 2006; Wang and Ahmed, 2007; Wiklund, 1998). This is another aspect that we propose to investigate. One of the reasons that led us to study the relationship between the SOs of the firm and performance is the fact that several scholars argued that the relationship between capabilities and performance might not be direct, but rather mediated through the firm's strategy (Day, 1994; Wiklund, 1998). On the other hand, the definition of SO enables us to consider that a firm may possess several SOs, and this is one aspect that we intend to test in the present study.

To this end, we aim to inquire the top managers of selected firms about their views of the sources of higher performance. We inquire only top managers of SMEs, since the literature shows that top managers are the persons that possess most knowledge about strategic matters (Zahra, 1996; Zahra and Covin, 1995; Zahra, Nielsen, and Bogner, 1999).

SMEs belonging to the service sector are especially important to our study since, according to RBV, they often operate in a turbulent environment which demands that they have the ability to change through dynamic capabilities to achieve competitive advantage (Eisenhardt and Martin, 2000; Teece, 2007; Zahra, Sapienza, and Davidsson, 2006).

II.9 Synthesis of the main studies relating strategic orientations and firm performance

In order to review the main studies relating SOs and firm performance, we conducted searches in a scientific database (ProQuest) and through the Web of Knowledge, for the existing papers on the matter. In the following table, we present some of the papers that have studied the link between strategy and firm performance using EO, MO, LO and related constructs.

Table 4 – Synthesis of the main studies related to SOs[12]

Study	Abstract/Findings	Model/Methods
Aldas-Manzano, Küster, and Vila. (2005)	This paper aims to determine to what extent companies operating in the same sector and with similar MO are similarly concerned about innovation. It concludes that MO and innovation are not isolated fields, and although a direct relationship between MO and innovation could not be statistically proved, some tools and policies related to innovation are more heavily used by the firms more oriented to the market. On the other hand, the study supports a positive relationship between MO and firm performance.	The hypotheses were tested using multidimensional scaling analysis, cluster analysis and analysis of variance.
Auger, BarNir, and Gallaugher (2003)	This paper studies the relationship between SO (technology policy and EO being examples of SO), competition and Internet-based electronic commerce. The results show that the more aggressive the technology policy and the stronger the EO, the more the firm uses Internet to conduct business activities. The competitive intensity of the business environment moderates these relationships.	The hypotheses were tested using hierarchical multiple regression analysis.
Baker and Sinkula (1999a)	This article integrates LO and MO to understand innovation-driven organizational performance and to measure the degree to which MO and LO influence organizational performance independent of their effect on product innovation. Results show that both LO and MO are required to successful performance based on innovation. On the other hand, LO has a direct effect on organizational performance but MO does not, which implies the potential pre-eminence of LO over MO. The effect of LO on product innovation is also stronger than that of MO.	The hypotheses were tested using structural equation modelling.
Baker and Sinkula (1999b)	This article studies the relationship between MO and organizational performance, as well as direct and indirect relationships between LO and organizational performance. Results show that organizational learning is associated with superior performance. Both LO and MO can independently lead to successful product innovation. New product development undertaken when both LO and MO are high leads to stronger performance gains. There is also a direct independent effect of LO on firm performance.	The hypotheses were tested using structural equation modelling and ordinary least squares regression.
Barrett, Balloun, and Weinstein (2000)	This article establishes a link between corporate entrepreneurship behaviour and firm performance. The correlation between these two constructs is higher as larger is the firm. Marketing mix factors of product, price, and promotion are not moderating variables of this relationship, though for certain groups, such as large industrial or consumer marketers, individual marketing mix factors do moderate this relationship.	The hypotheses were tested using moderated multiple regression analysis.

[12] It includes only journal papers. Books are not mentioned in this table.

Brown, Davidsson, and Wiklund (2001)	This article describes a new instrument that was developed specifically for operationalizing Stevenson's conceptualization of entrepreneurial management – defined as a set of management practices based in opportunities. This study shows that six sub-dimensions of Stevenson's conceptualization of entrepreneurial management can be identified, namely SO, Resource Orientation, Management Structure, Reward Philosophy, Growth Orientation and Entrepreneurial Culture. These dimensions only partially overlap with EO.	Two pre-tests were made and then the instrument was tested on a very large stratified random sample of firms, making also use of factor analysis.
Calantone, Cavusgil, and Zhao (2002)	This paper delineates four components of LO: commitment to learning, shared vision, open-mindedness, and intraorganizational knowledge sharing. A framework is tested in which LO, its effects on firm innovativeness and on firm performance are examined. Results show that LO and innovation are distinct constructs: if LO is considered as the input, then firm innovativeness can be viewed as the output of learning efforts. It is concluded that LO has a direct influence on firm performance and it also enhances organizational performance indirectly through its influence on competitive advantage. Firm innovativeness is also positively related to firm performance. There is a moderating effect of organization's age on the relationship between LO and firm innovativeness. This moderating effect does not exist between LO and performance.	The hypotheses were tested using structural equation modelling.
Chow (2006)	This paper investigates the link between EO and firm performance in China. The findings confirm the positive association between EO and firm performance. The business environment showed a significant impact on EO and a significant negative effect on firm performance. Human capital, in terms of the percentage of employees with college education, enhances EO and firm performance.	The hypotheses were tested using regression analysis.
Coulthard (2007)	This article reviews four Australian industry studies that used Lumpkin and Dess' (1996) EO construct. The objective was to check if there are variations in the importance of each dimension of the mentioned construct. The reviewed studies all showed a positive correlation between performance and innovativeness as well as between performance and proactiveness. However, the dimensions autonomy, risk-taking, and competitive aggressiveness varied in importance and over time. This variation was partially attributed to different definitions of EO dimensions, and to industry based contextual bias. A new model to explain firm performance based on EO is then proposed, by inclusion of a construct titled "relational dynamism" (that relates to internal and external relationships or as often described as "networking").	Deductive thinking, based on the existing literature and on the arguments and insights of the author.
De Clercq, Sapienza, and Crijns (2005)	This paper integrates the notions of organizational learning and EO into the body of international entrepreneurship. The extent to which SMEs engage in international activities is investigated. The results suggest that the firm's international learning effort and EO are positively associated with the internationalization intent; domestic learning effort is negatively related with the internationalization intent.	The hypotheses were tested using multiple regression analysis.
Deshpandé, Farley, and Webster (1993)	This paper concludes that business performance is correlated positively with the customer's evaluation of the supplier's customer orientation, though the supplier's own assessment of customer orientation does not correspond to that of the customer. It also shows that successful market innovation contributes to higher performance.	The hypotheses were tested using discriminant and correlational analyses.

Erdil, Erdil, and Keskin (2004)	This paper studies the interrelationships between MO, firm innovativeness and innovation performance. The results show that collection and use of market information is positively correlated with firm innovativeness and with innovation performance. The same occurs with the development of market-oriented strategy. Implementation of market-oriented strategy is positively correlated with firm innovativeness but not with innovation performance. Collection and use of market information, development of market-oriented strategy and implementation of market-oriented strategy are correlated. Firm innovativeness is positively correlated with innovation performance.	The hypotheses were tested using correlational analysis.
Farrell (2000)	This paper integrates the constructs of organizational change strategies, MO, top management behaviour, leadership style, LO and firm performance. The findings show that both planned and emergent change strategies significantly influence MO. Top management behaviour and leadership style significantly influence LO. Results also indicate that MO is positively related to LO and that a LO has a stronger significant positive influence on business performance than does a MO.	The hypotheses were tested using two-stage least squares regression analysis.
Farrell and Oczkowski (2002)	This paper studies the relationships between MO, LO and organizational performance. The findings suggest that a MO may be the pre-eminent strategy to achieve superior organizational performance.	The hypotheses were tested using ordinary and two-stage least squares regression analysis.
Farrell, Oczkowski, and Kharabsheh (2008)	International Joint Ventures (IJVs) are argued to provide a platform for organizational learning, which facilitates organizational performance. This paper attempts to answer if IJVs should focus more on being learning oriented or market oriented. The findings suggest that a MO has a more positive impact on organizational performance than a LO, for IJVs.	The hypotheses were tested using two-stage least squares estimator for latent variable models.
Gatignon and Xuereb (1997)	This paper attempts to understand which of three SOs of the firm (customer, competitive, and technological) is more appropriate, when, and why it is so in the context of developing product innovations. The results suggest that: a firm wishing to develop an innovation superior to competitors must have a strong technological orientation; in high-growth markets it is useful to develop a competitive orientation because it enables firms to develop innovations with lower costs; in markets in which demand is uncertain, firms should be customer and technology-oriented; and a competitive orientation is appropriate in relatively certain markets and should be de-emphasized in highly uncertain markets.	The hypotheses were tested using ordinary least squares estimation.
Grinstein (2008)	This study highlights the importance of the study of the relationship between MO and alternative SOs of the firm, examines the effect of MO on different orientations, and identifies the orientations that are more likely to be combined with MO. The results suggest that MO is strongly correlated with LO, EO, and employee orientation, and that it has a moderate positive relationship with innovation orientation.	A meta-analysis was used to synthesize empirical results on the relationship between MO and LO, EO, innovation orientation and employee orientation.

Han, Kim, and Sristava (1998)	This study explores the role of organizational innovations in the MO-performance relationship. Innovations are vital components of business performance, which requires a market-oriented culture that facilitates organizational innovativeness. The roles of different MO components might vary, contingent on the type of innovation strategies and turbulences present in the environment.	The hypotheses were tested using three-stage least squares analysis.
Hanvanich, Sivakumar, and Hult (2006)	This paper examines the moderating role of environmental turbulence on the relationships between LO and firm's memory and organizational performance and innovativeness. The findings indicate that the extent to which learning and memory are associated with organizational performance is contingent on the level of turbulence. Thus, in contexts of low turbulence, LO and firm's memory are linked with performance and innovativeness, but in high turbulence contexts, only LO is linked with performance and innovativeness.	The hypotheses were tested using structural equation modelling and hierarchical multiple regression analysis.
Hou (2008)	This study proposes and delineates a research model about the impact of MO and DC on firm performance. It argues that MO can be transformed into DC and that the value of MO is positively mediated by DC.	Conceptual paper.
Hult and Ketchen (2001)	This study proposes that MO, entrepreneurship, innovativeness and organizational learning are capabilities that collectively contribute to the creation of positional advantages, which leads to superior financial performance. The results indicate that positional advantages arising from the mentioned capabilities have a positive effect on large multinational corporations' performance.	The hypotheses were tested using structural equation modelling.
Hult, Hurley, and Knight (2004)	This study proposes that MO, EO and LO are key antecedents to innovativeness, and that there is a direct relationship between innovativeness and business performance. These relationships are examined in general and in the context of varying market turbulence. The results support these hypotheses in general. Relatively to market turbulence, there is not a greater effect of innovativeness on business performance under high market turbulence. On the same line, the proposition that the effect of MO on innovativeness will not differ significantly despite differences in the degree of market turbulence is not supported.	The hypotheses were tested using structural equation modelling.
Hurley and Hult (1998)	This study concludes that higher levels of innovativeness in the firm's culture are associated with a greater capacity for adaptation and innovation. Results also suggest that higher levels of innovativeness are associated with cultures that emphasize learning, development, and participative decision making.	The hypotheses were tested using structural equation modelling and hierarchical multiple regression analysis.
Im and Workman (2004)	This study examines the mediating role of new products and marketing programs creativity between MO and new products success. The findings suggest that new products and marketing programs creativity do mediate the relationship between MO and new products success. It is also demonstrated that the meaningfulness dimension, rather than the novelty dimension, of creativity is of greater importance in explaining the mentioned link.	The hypotheses were tested using structural equation modelling.
Jantunen, Puumalainen, Saarenketo, and Kylaheiko (2005)	This study explores the effect of an EO and a firm's reconfiguring capabilities on international performance. The findings suggest that a firm's EO and reconfiguring capabilities affect its international performance and constitute a potential source of competitive advantage.	The hypotheses were tested using hierarchical multiple regression analysis.

Jogaratnam and Tse (2006)	This study tests the EO and organizational structure-performance link in an Asian context. The results indicate that EO is positively associated with performance but, contrary to expectations, organic structures are negatively associated with performance.	The relationships were tested using correlational and regression analysis.
Kaya and Seyrek (2005)	This paper investigates the effects of EO, technological orientation and customer orientation on firm financial performance, contingent on market dynamism. The results indicate that there is a positive relationship between EO and performance when the market is highly dynamic. When the market dynamism is low, there is a positive relationship between technological orientation and performance. On the other hand, there is a negative relationship between customer orientation and performance when the market dynamism is either high or low.	The relationships were tested using regression analysis.
Keh, Nguyen, and Ng (2007)	This study concludes that EO plays an influential role on the acquisition and utilization of marketing information, and also has a direct effect on firm performance. The utilization of marketing information regarding marketing-mix decisions positively affects firm performance, and particularly mediates the relationship between EO and firm performance.	The hypotheses were tested using structural equation modelling.
Keskin (2006)	This paper investigates the nomological relations among MO, LO, and innovativeness in SMEs of developing countries. The results show that firm innovativeness positively affects firm performance, LO positively affects firm innovativeness, MO positively affects LO. Results also suggest that LO mediates the relationship between MO and firm innovativeness, and MO indirectly impacts firm performance through firm innovativeness and learning.	The hypotheses were tested using structural equation modelling.
Killic and Dursun (2007)	This research study investigates the antecedents and consequences of customer orientation at the individual level. The study reveals that young marketers focus more on customers than older marketers. Inexperienced marketers care more about their customers than experienced ones. Educated marketers have more customer orientation than less educated ones. Higher levels of customer orientation result in higher levels of relationship development and performance.	The hypotheses were tested using structural equation modelling.
Knight (2000)	This study concludes that the greater the firm's EO, the more likely the firm is to pursue marketing leadership strategy, quality leadership strategy, and product specialization strategy. These firms which pursue marketing leadership strategy tend to pursue acquisition of technology and respond to globalization. Firms which pursue quality leadership and product specialization strategies tend to pursue acquisition of technology. Results also show that the more the firm responds to globalization, and the more the firm prepares in advance to enter foreign markets, the better is its performance. Contrary to expectation, there is no linkage between technology acquisition and firm performance.	The hypotheses were tested using structural equation modelling, correlational and regression analyses.

Kotabe (1990)	This research investigates the relationships between several aspects of innovation and firm performance. The results demonstrate that firms which emphasize both product and process innovations have higher market performance than firms emphasizing either product or process innovations. Results also show that the faster technological change is, the more emphasis is placed on process innovations. On the contrary, when outsourcing of components is higher, less emphasis is placed on process innovations. When growth rate of the market is higher, more emphasis is placed on process and product innovations. Results also suggest that products that are marketed in all three Triad regions of the world have higher levels of process and product innovations. And finally, multinational firms with a corporate product policy pursuing worldwide standardized products emphasize more process and product innovations than do those with a product policy pursuing adaptation; and Japanese firms emphasize both process and product innovations more than European firms do.	The hypotheses were tested using regression analysis.
Kropp, Lindsay, and Shoham (2006)	This paper examines the interrelationships between aspects of EO, MO and LO, and international entrepreneurial business venture (IEBV) performance. The findings indicate that IEBV performance is positively related to the innovativeness component of an EO, a MO, and a LO. Contrary to expectations, the communications aspect of EO is inversely related to objective performance measures.	The hypotheses were tested using structural equation modelling.
Laforet (2008)	This article investigates the links between size, SO and MO with innovation. Results show that Prospectors (medium-sized companies) are more innovative and market-oriented than Defenders (small companies).	The hypotheses were tested using descriptive statistics.
Lee, Lee and Pennings (2001)	This study examines the influence of internal capabilities (namely EO, technological capabilities, and financial resources invested during the development period) and external networks on firm performance. The results show that the three indicators of internal capabilities are important predictors of a start-up's performance. Among external networks, only the linkages to venture capital companies predicted the start-up's performance. Several interaction terms between internal capabilities and partnership-based linkages have a statistically significant influence on performance.	The hypotheses were tested using regression analysis.
Lee and Sukoco (2007)	This article investigates the effects of EO and Knowledge management capabilities on innovation, competence upgrading and organizational effectiveness. This study also examines whether social capital moderates the effects of EO and Knowledge on organizational effectiveness. The results suggest that EO has a positive influence on the capability of the organization to manage Knowledge, on innovation, on competence upgrading and on organizational effectiveness. Furthermore, Knowledge management capabilities have a significant impact on innovation and organizational effectiveness. In what concerns social capital, it was found that it moderates the effect on EO and Knowledge management capabilities on the dependent variables.	The hypotheses were tested using structural equation modelling.

Lee and Tsai (2005)	This article evaluates the interrelationships between MO, LO, and innovativeness. The effects of business operation mode on LO and innovativeness are also studied. The results suggest that MO is associated with LO and innovativeness. There is also an association between LO and innovativeness. The study also concludes that a participative, power sharing, and collaborative business operation mode may enhance innovativeness and business performance.	The hypotheses were tested using structural equation modelling, cluster and regression analyses.
Li (2005)	This study investigates how MO, technology orientation and EO influence the formation of managerial networks (ties with government and with business), and the impact of these networks on firm performance. The results show that the considered SOs foster network building, although not in the same manner. Managerial networking has a positive impact on firm performance. Competitive intensity moderates the relationships between SOs and managerial ties.	The hypotheses were tested using hierarchical moderated regression analysis.
Li, Zhao, Tan, and Liu (2008)	This paper investigates the moderating effect of EO on the linkage between MO and firm performance among small enterprises in China. The results show that MO, alone and in conjunction with certain EO dimensions, namely innovativeness and proactiveness, is positively related to firm performance.	The hypotheses were tested using correlational and regression analysis.
Lin, Peng, and Kao (2008)	This paper investigates if LO, MO, EO and innovativeness function as key success factors in technology-intensive firms. It is demonstrated that MO and LO are antecedents to innovativeness. LO has a direct effect on innovativeness, but it insignificantly impacts performance. Indirectly, however, LO positively affects business performance through innovativeness. The results also suggest that LO plays a mediating role in the relationship between MO and innovativeness. On the other hand, organizational structure does not play a moderating role in the relationship between innovativeness and business performance. However, the extent of formalization of an organizational structure negatively correlates with business performance.	The hypotheses were tested using structural equation modelling.
Lings and Greenley (2005)	This paper attempts to develop a clear understanding of internal marketing, develops an instrument to measure it, and tries to find empirical evidence of its impact. Therefore, a new multidimensional construct is developed: Internal Market Orientation (IMO), which contains five dimensions. The impact of IMO on several organizational factors is explored. Results show positive consequences of IMO for customer satisfaction, relative competitive position, staff attitudes, staff retention, and staff compliance.	This article makes use of exploratory and confirmatory factor analyses.
Low, Chapman, and Sloan (2007)	This study aims to explore the nature of the interaction between innovation and MO. It also seeks to identify key components of MO that are antecedents of the innovation performance of the firm. Findings show that innovation orientation is positively correlated to MO and both innovation orientation and MO are positively correlated to firm performance and the degree of change in the firm's competitive environment.	The hypotheses were tested using correlational analysis.

Lumpkin and Dess (1996)	This paper clarifies the nature of the EO construct and proposes a contingency framework for investigating the relationship between EO and firm performance. EO is viewed as a multidimensional construct, composed of the following dimensions: autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness. These dimensions may vary independently of each other in a given context. Alternative contingency models (moderating effects, mediating effects, independent effects, interaction effects) are proposed for testing the EO-performance relationship.	Deductive thinking, based on the existing literature and on the arguments and insights of the authors.
Macedo and Pinho (2006)	This article investigates the extent to which the type of revenue strategy is related to the organization's MO, towards donors or users, in the non-profit sector. The findings show that non-profit organizations favour a MO towards users, revealing a less proactive behaviour relative to their donors. Diversification of revenue sources is likely to favour a higher degree of MO.	Qualitative research methods and one-way analysis of variance.
Matsuno, Mentzer, and Ozsomer (2002)	This article investigates structural influences of entrepreneurial proclivity and MO on business performance. The results show that entrepreneurial proclivity has not only a positive and direct impact on MO but also an indirect and positive effect on MO through the reduction of departmentalization. Findings also suggest that entrepreneurial proclivity's performance influence is positive when mediated by MO but negative or nonsignificant when not mediated by MO.	The hypotheses were tested using structural equation modelling.
Mavondo, Chimhanzi, and Stewart (2005)	This paper investigates the direct, indirect and total effects of LO and MO on organizational performance through human resource practices and innovation as mediators. Results show that human resource practices are a major mechanism for transmitting the benefits of LO and MO. The findings also suggest that LO should be viewed as exploration while MO acts as the interface between exploration and exploitation and, finally, human resource practices and innovation must be viewed as exploitation or implementation issues.	The hypotheses were tested using structural equation modelling.
McGuiness and Morgan (2005)	This research paper aims at defining a new construct (organizational change capability) which determines an organization's effectiveness in implementing marketing strategy, considered as a process of leading and managing organizational change. The paper identifies organizational change capability as relating to LO and MO in jointly influencing the success of dynamic strategy outcomes.	Conceptual paper.
Menguc and Auh (2006)	In this research, a conceptual model is developed explaining how MO can be transformed into DC when complemented by reconfigurational constructs such as innovativeness. Results suggest that the effect of MO on firm performance is strengthened when MO is combined with internal complementary resources, such as innovativeness.	This article makes use of confirmatory factor analysis and hierarchical moderated regression analysis.
Miller and Friesen (1983)	The authors hypothesized that increases in environmental dynamism, hostility and heterogeneity should be related to specific change in the amount of analysis and innovation which characterizes strategy-making activity. Results suggest that most of these relationships tend to be much stronger in successful than in unsuccessful samples of firms.	The hypotheses were tested using correlational analysis.

Morgan and Strong (1998)	This paper attempts to understand how MO may be related to competitive strategy. Six dimensions of a firm's competitive strategy, conceptualized as SO, are presented, namely aggressiveness, analysis, defensiveness, futurity, proactiveness, and riskiness. Results show that firm's proactiveness, analysis, and futurity in SO are all positive and significant in their association with MO.	The hypotheses were tested using multiple regression analysis.
Morgan, Vorhies, and Mason (2009)	This paper examines MO and marketing capabilities as drivers of firm performance. Results show that MO and marketing capabilities are complementary assets that contribute to superior firm performance.	The hypotheses were tested using structural equation modelling and hierarchical multiple regression analysis.
Morris, Coombes, Schindehutte, and Allen (2007)	Building on findings regarding EO within for-profit organizations, a model of antecedents, correlates and outcomes of entrepreneurship in non-profits is developed and tested in this article. The findings show that entrepreneurship has a legitimate role in non-profits, and the work climate can be designed to affect levels of entrepreneurship. EO is associated with aspects of MO, but not with financial performance.	The hypotheses were tested using structural equation modelling.
Mostafa, Wheeler, and Jones (2006)	This paper investigates the link between EO, commitment to the Internet and export performance in SMEs. It arguments that more entrepreneurial firms are more likely to use the Internet to develop export market opportunities than less entrepreneurial firms. The findings show that firms with high EO are more committed to the Internet and have better export performance than firms with low EO.	The hypotheses were tested using cluster analysis and t-test analysis was then applied.
Naldi, Nordqvist, Sjoberg, and Wiklund (2007)	This article focuses on risk-taking as one important dimension of EO and its impact in family firms. The results show that risk-taking is a distinct dimension of EO in family firms and that it is positively associated with proactiveness and innovation; family firms take risks to a lesser extent than nonfamily firms; and risk-taking in family firms is negatively related to performance.	The hypotheses were tested using exploratory and confirmatory factor analysis and hierarchical multiple regression analysis.
Noble, Sinha, and Kumar (2002)	In this study, the authors explore the relative performance effects of various dimensions of MO, as well as the relative effects of alternative SOs that reflect different managerial priorities for the firm. The mediating effects of organizational learning and innovativeness on the orientation-performance relationship are considered. The results show that firms possessing higher levels of competitor orientation, national brand focus, and selling orientation exhibit superior performance.	The hypotheses were tested using regression analysis.
Olavarrieta and Friedman (2008)	In this study, an integrative conceptual model that links MO, knowledge and firm performance is presented. The results show a significant impact of MO, market sensing and innovativeness on superior performance.	The hypotheses were tested using structural equation modelling.
Pulendran, Speed, and Widing (2000)	This paper investigates the antecedents and consequences of MO. The results successfully replicate the Jaworski and Kohli (1993) findings, within an Australian environment.	The hypotheses were tested using regression analysis.
Qu (2009)	This paper investigates the joint effects of MO and corporate social responsibility on firm performance in China. It was found that although both MO and corporate social responsibility could enhance performance, once the effects on corporate social responsibility are accounted for, the direct effects of MO on performance diminish considerably.	The hypotheses were tested using structural equation modelling.

Ramaswamy, Srivastava, and Bhargava (2009)	This present study proposes that market-based assets and capabilities of a firm impacts performance in three market-facing business processes, which in turn, influence the firm's financial performance. It also examines the interrelationship among three business processes and their impact on the market value of firms. The study concludes, on the other hand, there is a moderating influence of size of firm.	The hypotheses were tested using correlational and hierarchical multiple regression analyses.
Runyan, Droge, and Swinney (2008)	This article examines the constructs of EO versus small business orientation. The impact of the mentioned constructs on performance is analyzed, as well as whether these effects are moderated by longevity. The results show that EO and small business orientation are unique constructs, and for younger firms (firms "below 11 years") only EO significantly predicts performance, while for the older firms (firms "11 or more years") only small business orientation significantly predicts performance.	The hypotheses were tested using structural equation modelling.
Ruokonen and Saarenketo (2009)	This paper addresses the SOs, namely EO, LO, and MO, of rapidly internationalizing small software firms. The findings suggest that orientations evolve as the small company develops, and that an EO must be embedded in the mindset of rapidly internationalizing small companies. It is also argued that EO only has an effect on the success of the international venture when combined with LO and MO.	Qualitative case study.
Salavou, Baltas, and Lioukas (2004)	This study attempts to identify the determinants of organizational innovation in SMEs. The results show that strategy-driven characteristics, such as MO and LO, increase SMEs's innovative performance. Competition-related characteristics, in particular, industry concentration and barriers to entry, have significant effects on SMEs's innovative activity.	The hypotheses were tested using regression analysis.
Schindehutte, Morris, and Kocak (2008)	This paper investigates the similarities and differences between market-driving behaviour and MO. It also studies how the firm's EO interacts with other SOs. This paper argues that market-driving behaviour is distinct from a firm's MO; instead, it is the essence of entrepreneurial action. It is also argued that EO interacts with other SOs, and EO plays a critical role in determining transitions among various SOs over time. An integrative model is proposed to illustrate the dynamics of the interface between marketing and entrepreneurship.	Qualitative case studies.
Shoham, Rose, and Kropp (2005)	This paper assesses the impact of MO on firm performance. The results show that direct, indirect and total impacts of MO on performance are all significant. It is also concluded that the geographic location of the study and the performance measure used (but not the scale) affects explained variance.	A meta-analysis was used to synthesize empirical results on the mentioned relationship.
Sinkovics and Roath (2004)	This study investigates relationships between strategy and performance within an interorganizational context, i.e., manufacturer-third-party logistics providers. The results show that capabilities, operationalized as operational flexibility and collaboration, mediate the relationship between SOs (customer and competitor orientations) and performance.	The hypotheses were tested using structural equation modelling.
Sinkula, Baker, and Noordewier (1997)	This paper presents a broad conceptual framework for the modelling of organizational learning. The authors conclude that a more positive LO will directly result in increased market information generation and dissemination which, in turn, directly affects the degree to which an organization makes changes in its marketing strategies.	The hypotheses were tested using structural equation modelling.

Slater, Olson, and Hult (2006)	This paper develops and examines a comprehensive model of strategy formation in the context of the firm's SO. The results allow conclude that SO moderates the relationship between different elements of the strategy formation capability and performance.	The hypotheses were tested using structural equation modelling and regression analysis.
Tang, Tang, Zhang, and Li (2007)	This paper investigates the EO-performance relationship in China. The results confirm a positive influence of EO on performance. This relationship is more positive among state-owned enterprises than among privately-owned enterprises.	The hypotheses were tested using exploratory and confirmatory factor analysis, moderated hierarchical multiple regression analysis and sub-sample test.
Todorovic and Ma (2008)	This paper attempts to understand the role culture plays on the relationship between EO and MO and its impact on organizational performance. The findings suggest that EO in collectivist societies face lean resources environments and that the effectiveness of SOs should not be assumed to be uniform.	Conceptual paper.
Voss and Voss (2000)	This study examines the impact of three alternative SOs (customer, competitor and product orientation) on several subjective and objective measures of performance in the nonprofit professional theatre industry. The results show that the association between SOs and performance depends on the type of performance measure used. On the other hand, customer orientation exhibits a negative association with some measures of performance.	The hypotheses were tested using moderated hierarchical multiple regression analysis.
Wattanasupachoke (2009)	This paper examines the relationship between corporate innovation culture, MO and innovation-oriented strategy formulation, as well as the influences of innovation-oriented strategies on firm performance. The results show that there are significant relationships among innovation value chain, MO, innovation-oriented strategy formulation and firm performance. Both financial and non-financial performances are positively influenced by the development of innovation-oriented strategies, particularly product innovation.	The hypotheses were tested using multiple regression analysis.
Wei and Lau (2008)	This study examines MO as the antecedent to strategic human resource management and its effects on firm performance, as well as the moderating effect of ownership type and autonomy in staffing. The results show that strategic human resource management mediates the relationship between MO and firm performance. The effect of strategic human resource management on performance is stronger for firms with a high degree of autonomy in staffing and weaker for private firms.	The hypotheses were tested using multiple regression analysis.
Wiklund (1999)	This research examines the sustainability of the EO-performance relationship, i.e., whether EO affects performance during an extended period of time or its effect is only temporary. The results confirm that there is a positive relationship between EO and performance and this relationship also increases over time. The results also show that investments in EO may be worthwhile for small firms since they pay off over an extended period of time.	The hypotheses were tested using multiple regression analysis.

Wiklund and Sheperd (2003)	This study argues that EO captures an important aspect of the way a firm is organized. It hypothesizes the relationship between knowledge-based resources (as opposed to property-based or tangible resources) and firm performance. It also questions if EO is positively related to firm performance and if EO moderates the relationship between knowledge-based resources and firm performance. The results suggest that knowledge-based resources (which can be applied to discover and exploit opportunities) are positively related to firm performance. The findings also allow concluding that EO moderates this relationship, i.e., EO enhances the positive impact that a firm's bundle of knowledge-based resources has on performance.	The hypotheses were tested using hierarchical multiple regression analysis.
Wiklund and Sheperd (2005)	In this article, the authors investigate the EO of small businesses and find that a main-effects-only analysis provides an incomplete explanation of performance. When access to capital and dynamism of the environment are combined with EO, this configurational approach explains variance in performance over and above a contingency model and a main-effects-only analysis.	The hypotheses were tested using hierarchical multiple regression analysis.
Zahra (2008)	This paper examines the interaction between EO and MO and its effect on performance in both high and low technology industries. The results show that firms with strong MO and EO enjoy greater wealth creation than those that have low orientations. On the other hand, industry context will enhance or mitigate the strength of the influence of MO and EO on financial performance.	The hypotheses were tested using ordinary least squares regression analysis.
Zahra and Neubaum (1998)	This study attempts to link macro, competitive, market and technological hostility to the EO of new ventures (these defined as companies that have eight years or less) in low and high technology industries. This study shows that, when facing adverse environments, many ventures adopt a strong EO, that favors the creation of new products and position a young firm to compete effectively with its competitors. The results show that the associations between different types of environmental hostility and EO are stronger among high than low technology companies.	The hypotheses were tested using regression analysis.
Zhou and Li (2007)	This paper reviews the extant literature on SO and its effect on firm performance, identifying research gaps and proposing to integrate institutional theory, DC perspective, and the knowledge-based view within the SO research stream.	Conceptual paper.
Zhou and Li (2010)	This study examines how SOs (MO and technology orientation) help build DC and its contingencies in China's emerging economy. The results show that SOs are important drivers of adaptive capability, a key element of DC. The effectiveness of SOs is contingent on market dynamics, particularly when market demand becomes more uncertain, customer orientation has a weaker impact whereas technology orientation has a stronger effect on adaptive capability. When competition is fiercer, both competitor and technology orientations build adaptive capability more effectively.	The hypotheses were tested using moderated hierarchical multiple regression analysis.

Source: Prepared by the author.

CHAPTER III - RESEARCH DESIGN

III.1 Research strategies and data collection

As mentioned previously (see Chapter I), this research study adopts a quantitative approach with the postpositivism paradigm. Given the nature of our research problem, we use the survey inquiry. The researcher should also position the study in terms of an inductive or deductive approach, keeping in mind that an inductive approach is related to the development of theory when empirical regularities are identified, and a deductive approach is related to testing the theory (Yin, 2003). In the present study, we use a deductive approach where the identified relationships are hypothesized and tested. We started with a thorough literature review to gain a deeper understanding of our research topic and to understand the different perspectives that have been used to study our research topic, as well as to identify the main conclusions and gaps in the literature.

Next, after testing the reliability of the questionnaire, we replicate two well-known studies to a different setting, to examine if their conclusions are valid to a particular industry – KIBS. We also define a new conceptual model, which is an integrative approach that aims at closing some gaps identified in the literature. This way, we attempt to identify patterns regarding how firms' SOs and dynamic capabilities can be linked to firm performance in KIBS.

III.2 Perspectives on the relationship between strategic orientation and firm performance

As mentioned earlier (see II.4), several perspectives have been adopted to study, direct or indirectly, the relationship between competitive strategy and firm performance which are based in constructs related to SO, namely EO, MO, LO, as well as production, technological, selling and employee orientations using different approaches where the SO-related constructs can be seen as internal capabilities or resources. One commonality between these constructs is the fact that they reflect the firm's ability to recognize and seize opportunities, which leads to higher performance.

Our aim is to study the relationship between the SOs of the firm and its performance, mediated by its dynamic capabilities. We would like to propose that EO, MO, and LO enhance firm's performance not only in a direct way but also indirectly, through dynamic capabilities.

As mentioned previously (see II.6), we have identified several SOs in our literature review, but we chose to focus only on some of these constructs for several reasons. First of all, some scholars argue that MO, EO and technology orientation are the three most important types of SOs for firms to achieve a long-term success (Gatignon and Xuereb, 1997; Hurley and Hult, 1998; Noble, Sinha, and Kumar, 2002). Besides, we intend to prove that LO is interrelated with MO and EO, because all these orientations rely on knowledge and learning to be effective and a revision of the learning theories allows us to conclude that processes of knowledge identification, knowledge diffusion, and knowledge integration are fundamental in the generation of core competencies.

In fact, MO and LO have recently been subject of several research studies, especially within the innovation research (Deshpandé, Farley, and Webster, 1993; Hurley and Hult, 1998; Jaworski and Kohli, 1993; Kitchell, 1995; Menon and Varadarajan, 1992; Sinkula, 1994; Slater and Narver, 1995). The concepts of MO and learning are linked, perhaps in a synergistic manner, as suggests the work of Baker and Sinkula (1999b)[13], Dickson (1996), Hurley and Hult (1998), and Slater and Narver (1995) but, although related, MO and LO are distinct constructs (Baker and Sinkula, 1999a). Also, it has been demonstrated that the pursuit of continuous learning is a way of achieving competitive advantage (Dickson, 1996; Hunt and Morgan, 1996; Morgan and Strong, 1998) and some studies have showed that MO and learning increase innovative performance of SMEs (Salavou, Baltas, and Lioukas, 2004).

Other studies conclude that MO would lead to greater improvements in firm performance if combined with other internal complementary resources and

---

[13] The mentioned authors conclude there is a pre-eminence of LO over MO, because LO has a direct effect on organizational performance but MO does not.

transformational resources[14], such as innovativeness, to create dynamic capabilities (Menguc and Auh, 2006). One of the recommendations made by these authors for future research is to look into how other resources affect firm performance, when bundled together with MO. Jantunen, Puumalainen, Saarenketo, and Kylaheiko (2005) also suggest that other scholars examine the relationship between EO and other intangible assets (other than the reconfiguring capabilities considered in their study), such as organizational learning capabilities and performance in the context of changing markets.

Here, we argue that several orientations of the firm interact with each other, namely EO, MO and LO, and when they are combined with dynamic capabilities, they contribute to create superior firm performance. In other words, although there is a relationship between SOs and firm performance, the improvements in firm performance will be greater when EO, MO, LO and DC are simultaneously present.

Chow (2006) argues that the effects of entrepreneurial behaviour may be contingent on external influences or on internal influences, such as organizational structure and characteristics of the founder or top management. This way, dynamic capabilities can be considered as an internal influence on entrepreneurial behaviour and, indirectly, on firm performance.

The results of a meta-analysis on the relationship between MO and alternative SOs (Grinstein, 2008) suggest that market-oriented firms are more likely to combine MO with LO or EO. Also, in dynamic environments there are plenty of opportunities and, as such, firms with higher EO perform better because they pursue new market opportunities before their competitors do (Tang, Tang, Zhang, and Li, 2007). In such environments, firms need to constantly search for new opportunities since the existing operations do not guarantee enough profitability (Covin, Green, and Slevin, 2006) and EO also helps firms in coping with such uncertainty (Tang, Tang, Zhang, and Li, 2007).

In fact, we have found several studies that establish a link between MO and firm performance, as well as between EO and firm performance and LO and firm performance. However, it is recognized that the association between SOs and

[14] Transformational resources are the "firm resources required to advantageously convert inputs into outputs" (Lado, Boyd, and Wright, 1992, p. 85).

performance varies depending on the type of performance measure used (Voss and Voss, 2000) and there are also several studies that demonstrate that the link between these SOs and firm performance is not statistically significant.

Some studies show there is a relationship between MO and firm performance (Day, 1994; Deshpandé and Farley, 1998, 2000; Deshpandé, Farley, and Webster, 2000; Harrison-Walker, 2001; Hult and Ketchen, 2001; Jaworski and Kohli, 1993; Knight and Dalgic, 2000; Kohli and Jaworski, 1990; Kohli, Jaworski and Kumar, 1993; Lusch and Luczniak, 1987; Narver, Jacobson and Slater, 1999; Narver and Slater, 1990; Olavarrieta and Friedmann, 2008; Pelham, 2000; Pelham and Wilson, 1996; Shoham, Rose and Kropp, 2005; Slater and Narver, 1994, 2000). However, various studies have found no direct relationship between MO and objective measures of performance. For example, Jaworski and Kohli (1993) found no significant link between these constructs when using market share, but found significant results when using a judgemental measure as the dependent variable. This can suggest that a bias can exist in which firms that regard themselves as perceptive relative to customers and competitors may overstate their performance (Noble, Sinha, and Kumar, 2002).

In a meta-analysis about the relationship between MO and firm performance, Shoham, Rose, and Kropp (2005) concluded that this relationship is stronger when subjective measures are used, followed by combinations of objective and subjective measures, and is weaker when objective measures of performance are used.

In the same line, there are studies that demonstrate there is a link between EO and performance (Barrett, Balloun, and Weinsten, 2000; Brown, 1996; Covin and Slevin, 1989; Dess and Beard, 1984; Keh, Nguyen, and Ng, 2007; Lee, Lee, and Pennings, 2001; Lee and Peterson, 2000; Lumpkin and Dess, 1996; Lyon, Lumpkin, and Dess, 2000; Miller, 1983, 1988; Naman and Slevin, 1993; Schoollhammer, 1982; Smart and Conant, 1994; Wiklund, 1999; Wiklund and Shepherd, 2005; Zahra, 1991, 1993; Zahra and Covin, 1995; Zahra and Garvis, 2000). However, most empirical studies report a tenuous relationship between EO and performance. As Zahra (2008) notes, EO manifests differently in different contexts and the effect of EO on performance varies from one industry type to another. Although it has been proved that EO is a key concept to understand firm performance, it is recognized as extremely difficult to develop a unified direct measure of entrepreneurial behaviour, since manifestations of opportunity seeking may vary for firms in industries of different maturity, technology and market structure (Brown, Davidsson, and Wiklund, 2001).

A link between LO and firm performance has also been demonstrated by several studies (e.g., Argyris and Schon, 1978; Baker and Sinkula, 1999b; Hult, Nichols, Giunipero, and Hurley, 2000; McCann, 1991; Nevis, DiBella, and Gould, 1995; Slater and Narver, 1995; and Zahra, Ireland, and Hitt, 2000).

III.2.1 Entrepreneurial orientation

The concept of EO arised from the strategic management literature and has become a relevant construct within the strategic management and entrepreneurship literature. It was originally proposed by Miller (1983), who defined an entrepreneurial firm as one that "engages in product market innovation, undertakes somewhat risky ventures, and is first to come up with 'proactive' innovations, beating competitors to the punch" (1983, p. 771). This level of analysis is also known as entrepreneurial posture (Covin and Slevin, 1991).

One of the dimensions of EO is innovativeness, a concept that comes from Schumpeter (1934) and includes the introduction of new products or new methods of production, the opening of new markets, the development of new sources of supply, and the creation of new market structures in an industry. Innovativeness can be thought of as a continuum going from making marginal improvements, which continuously advance the process of change, to technological leadership, that creates major disruptive changes (Schumpeter, 1934). It "reflects a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes" (Lumpkin and Dess, 1996, p. 142).

Innovation can be thought of as applied creativity in the business context (Kropp and Zolin, 2005) and, as such, in more uncertain situations, more creative and innovative firms tend to outperform other firms (McKee, Varadarajan, and Pride, 1989; Miller, 1983; quoted by Kropp, Lindsay, and Shoham, 2006). As some studies conceptualize

EO as a small firm's strategy (Wiklund, 1998; Wiklund and Shepherd, 2003), some scholars argue that small firms with unique capability, when behaving entrepreneurially, are able to improve their competitiveness (Parida, 2007).

When we mention innovation in the present study we are not referring to the typically outcome-oriented measure (e.g., number or success of new products, patents and scientific papers, among others) but to innovativeness which, accordingly to the remarks of Menguc and Auh (2006), reflects the firm's orientation toward innovation (Hurley and Hult, 1998) or the organization's inclination to engage in innovative behaviour (Menguc and Auh, 2006) or the innovation effort that captures the innovative spirit residing in a firm (Marinova, 2004). Hence, innovativeness, unlike innovation, is not an end but rather a means to an end (Menguc and Auh, 2006).

Although sometimes used as synonyms, EO and entrepreneurship are different concepts. As to entrepreneurship, we cannot say there is a generally accepted definition, partly because there are diverse theoretical backgrounds, from economics to strategic management, organization studies, psychology, sociology, as well as other disciplines, and as such, many complementary definitions exist. Cantillon (1734) was the first to formally use the term entrepreneurship, meaning working for oneself, i.e., seeking self-employment, which was linked with uncertainty and risk-taking. Therefore, entrepreneurship was originally considered a market entry problem, i.e., "What business shall we enter?" (Miles and Snow, 1978).

According to Lumpkin and Dess (1996), while entrepreneurship is defined as *new entry* (entering new or established markets with new or existing goods or services or launching a new venture), EO describes *how* new entry is done, which involves "the methods, practices, and decision-making styles managers use to act entrepreneurially" (Lumpkin and Dess, 1996, p. 136). Therefore, EO refers to the how, instead of the what, emerging from a strategic-choice perspective (Child, 1972).

Although the definition of entrepreneurship largely depends on the theoretical background of the researcher, almost every definition involves the concept of opportunities (e.g., Brazael, 1999; Churchill and Muzyka, 1994; Ireland, Hitt, and Sirmon, 2003; Lee, Lee, and Pennings, 2001; Shane and Venkataraman, 2000;

Stevenson, 1983; Wiklund and Shepherd, 2003; Zahra, Matherne, and Carleton, 2003). Brown, Davidsson, and Wiklund (2001) state that in the literature we can find opportunity-driven as opposed to resource-driven strategies. Thus, at one end of a continuum we have firms which try to exploit opportunities regardless of resources controlled, and on the other end we have firms that attempt to use efficiently their resources.

Jantunen, Puumalainen, Saarenketo, and Kylaheiko (2005) write that according to the taxonomy of Holcombe (2003), there are basically three categories of the origins of entrepreneurial opportunities: (1) Knightian-Schumpeterian market-unbalancing factors, (2) Hayekian entrepreneurial activities that generate other entrepreneurial possibilities, and (3) Kirznerian production-possibility-enhancing factors.

Therefore, these same scholars write that according to Knight (1921), entrepreneurship has to do with coping with market and technological uncertainties and the associated risk-taking; Schumpeter (1934) defines it in terms of the introduction of new products or processes, opening of new markets, development of new sources of supply and new market structures in a dynamic process of creative destruction where old technologies are replaced by new ones; Hayek (1945) focuses on the entrepreneur's ability to constitute social order through tacit-knowledge-based myopic acts; as with Hayek, Kirzner (1997) conceptualizes entrepreneurship as an arbitrage activity that drives markets toward equilibrium, in the sense that entrepreneurs recognize profit opportunities, which arise as a result of the incompleteness of market information, and make use of them (Jantunen, Puumalainen, Saarenketo, and Kylaheiko, 2005).

These scholars also point out that to turn opportunities into profitable asset configurations, firms use internal "entrepreneurial services" (Penrose, 1959) and organizational reconfiguring capabilities (Teece, Pisano, and Shuen, 1997). These "entrepreneurial services" are unique since a firm can combine different resources and different purposes to be achieved, and so the true resources are these services and not the inputs in the production process (Penrose, 1959).

As it was originally proposed, the construct of EO consists of the dimensions of innovativeness, risk-taking, and proactiveness (Miller, 1983). Covin and Slevin (1989) followed Miller's (1983) original conceptualization, and view EO as a firm's position along a continuum ranging from conservative to entrepreneurial, where conservative firms are those with strategic postures that are risk-averse, non-innovative, and reactive[15] and entrepreneurial firms are the opposite, i.e., risk-taking, innovative, and proactive[16]. Lumpkin and Dess (1996) added two dimensions to the construct, arguing that EO includes a propensity to act **autonomously**, a willingness to **innovate** and **take risks**, and a tendency to be **aggressive toward competitors** and **proactive**[17] relative to marketplace opportunities.

Lumpkin and Dess (1996) suggest the dimensions of EO are positively correlated, although firms are not equally entrepreneurial across all dimensions because successful new entry does not necessarily involve all these five dimensions. Because there is a contingent aspect of EO, Lumpkin and Dess (1996) suggest that the dimensions of the construct may vary independently of each other in a given context, while prior research has suggested that the dimensions of the EO construct covary (Covin and Slevin, 1989). In assessing the EO scale, Kreiser, Marino, and Weaver (2002) found evidence that the dimensions of EO may vary independently.

Several research studies demonstrated that the extent to which each of the dimensions of EO can predict the success of a new entry is contingent on external factors (namely dynamism, complexity and industry characteristics), or internal factors (which include size, organizational structure, strategy, strategy-making processes, firm resources and access to capital, culture and the characteristics of top managers, and firm's network capabilities).

Based on the literature review, we can say that the three most commonly researched components of EO are innovativeness, risk-taking, and proactiveness, because not all dimensions have been adopted by researchers, as noted by Kropp, Lindsay, and Shoham (2006) after Covin and Slevin, 1991; Kreiser, Marino, and Weaver*,* 2002; Marino,

---

[15] These firms are said to approximate Miles and Snow's (1978) defender firms and Mintzberg's (1973) adaptive organizations.
[16] These firms are somewhat similar to Miles and Snow's (1978) prospector firms and Mintzberg's (1973) entrepreneurial organizations.
[17] Proactiveness is directly associated with first-mover advantage, according to Lumpkin and Dess (1996), who argue that a proactive firm is a leader rather than a follower, because it has the will and foresight to seize new opportunities, even if it is not always the first to do so.

Strandholm, Steensma, and Weaver, 2002; Zahra, 1991. Some scholars claim that each of the dimensions should be considered separately while others argue that aggregated measures of the construct are more useful when a differential relationship is not expected.

Another circumstance that contributed to the existence of little consensus on the nature of entrepreneurship and how it contributes to performance is the fact that the concept of entrepreneurship has been used in different levels of analysis, namely individuals, groups and organizations as a whole (Lumpkin and Dess, 1996). We intend to apply our study at a firm or business-unit level, which is consistent with the Schumpeterian view (1934, 1942), which focused not on the individual entrepreneur but on firms, arguing that entrepreneurship would be dominated by firms capable of devoting more resources to innovation.

III.2.2 Market orientation

In the marketing literature, SO is generally a synonym of MO but, as we have stated before, other SOs exist. MO has been related to firm performance, based on the assumption that a market-oriented firm has a better understanding of its environment and customers, leading to customer satisfaction. To mention a few studies about this theme, following Voss and Voss (2000), we can refer results that demonstrate there is a link between MO and managers' perceptions of overall firm performance (Jaworski and Kohli, 1993), managers' perceptions of financial performance (Pelham and Wilson, 1996; Slater and Narver, 1994), managers' perceptions of sales growth (Slater and Narver, 1994), and managers' perceptions of new product performance (Atuahene-Gima, 1995, 1996; Pelham and Wilson, 1996; Slater and Narver, 1994).

Simultaneously, other studies do not support a direct relationship between MO and performance, namely market share (Jaworski and Kohli, 1993) and actual net income growth (Han, Kim, and Srivastava, 1998), as refered by Voss and Voss (2000). Diamantopoulos and Hart (1993) and Greenley (1995) did not find direct effects either. There is also reason to believe that the strength of the relationship between MO and performance may vary depending on industry characteristics, customer characteristics, or the type of performance measure used (Voss and Voss, 2000).

The MO construct, as it is defined in the studies of Day (1999), Im, Hussain, and Sengupta (2008), Laforet (2008), and Slater and Narver (1995), among others, consists of three dimensions, namely intelligence generation (an organizational system that enables the firm to identify the changes in the markets), information dissemination within the firm, and responsiveness to the market (Kohli and Jaworski, 1990). MO has also been defined as an organizational culture that enhances behaviours, namely customer orientation, competitor orientation and interfunctional coordination, which create superior value for customers and thus lead to superior firm performance (Narver and Slater, 1990).

There is also little consensus on the effect of MO on the detection of future needs and opportunities, because some scholars argue that market-oriented firms mainly focus on present customer needs, and do not uncover future trends, and thus MO may even be a disadvantage, while others state that market-oriented firms are more capable of understand both expressed and latent customer needs, as well as recognize industry trends and competitor actions, which leads to superior customer value (Slater and Narver, 1999).

III.2.3 Learning orientation

Knowledge is considered a source of competitive advantage in dynamic markets (Dickson, 1992; Grant, 1996a; Hitt, Ireland, and Hoskisson, 1999; Hoskisson, Eden, Lau, and Wright, 2000), mainly because knowledge has a strong ability to create a sustainable differentiation (McEvily and Chakravarthy, 2002; Miller and Shamsie, 1996), allowing firms to use and coordinate their resources and capabilities in distinctive ways providing unique value to customers (Teece, Pisano, and Shuen, 1997, Kohli and Jaworski, 1990) and it enhances the firm’s ability to deal with unexpected environmental changes, because learning-oriented organizations maintain closer contacts with stakeholders (Webster, 1992).

As it is refered by Salavou, Baltas, and Lioukas (2004), organizational learning is a determinant of innovation (Cohen and Levinthal, 1990; Stata, 1989), it enhances creativity and increases the ability of identifying opportunities (Angle, 1989), which can be especially relevant in SMEs because, due to resource constraints, most of them cannot develop significant R&D activities, and therefore they must rely on innovative ways of doing business.

Organizational learning, in the view of De Clercq, Sapienza, and Crijns (2005), includes both the activities related to existing knowledge and to the development of new knowledge (Cohen and Levinthal, 1990), i.e., it includes exploitation and exploration (Levinthal and March, 1993). Knowledge exploitation refers to incremental improvement of existing knowledge, skills and processes, through the assimilation of external knowledge into firm-specific knowledge, refinement and extension of existing know-how, and the creation and distribution of knowledge within the firm. By itself, exploitation may not be sufficient to lead to a sustainable competitive advantage, because of the changing environment in which organizations operate (Levinthal and March, 1993). Knowledge exploration includes the search for new knowledge, skills and processes.

Innovation derives mainly from this combination of existing and new knowledge (Ahuja and Lampert, 2001), which occurs after the conversion of external knowledge into the organization, so that it can have a practical use. In order to respond quickly to the market, knowledge conversion or creation processes should be disseminated through the organization (Gold, Malhotra, and Segars, 2001). Thus, Lee and Sukoco (2007) argue that if the organization ensures the existence of internal processes that encourage individuals to interact and collaborate with others, this will facilitate the dissemination of knowledge, which will increase the probability of innovation and enhance organizational effectiveness (Gold, Malhotra, and Segars, 2001; Leonard and Sensiper, 1998).

SO can influence organizational learning, namely through the emphasis the firm puts in future knowledge exploration or current knowledge exploitation, because SO guides how firms gather information and then translate its knowledge into learning and strategic actions (Noble, Sinha, and Kumar, 2002).

Hurley and Hult (1998) argue that being oriented towards learning suggests an appreciation for assimilating new ideas, thus promoting receptivity to innovation. According to Sinkula, Baker, and Noordewier (1997), LO is conceptualized as the degree to which the organization values knowledge, is open-minded, and has a shared vision. The first dimension is crucial since learning is more likely to occur in organizations which value learning (Sackmann, 1991). Open-mindedness is important because it allows the organization to question mental models and long-held routines, assumptions, and beliefs. Thus, it even allows unlearning to occur (Nystrom and Starbuck, 1984), a necessary phase for organizational change to happen. Finally, a shared vision provides direction to learning, which promotes commitment and purpose among employees (Day, 1994).

As such, learning-oriented firms are more willing to engage in numerous innovative activities, for example the creation of more efficient organizational structures, the improved use of technology, the more effective use of capital markets, more open channels of communication, and innovative training techniques, among others (Baker and Sinkula, 1999b).

As stated in Wilkens, Menzel, and Pawlowski (2004), it has been demonstrated that organizational learning theories (Argyris and Schon, 1978; Cyert and March, 1963) can serve as a framework for the analysis of strategic processes in organizations (Burgelman, 1996; Mintzberg and Lampel, 1999; Noda and Bower, 1996; Priem and Butler, 2001). Therefore, in this context, strategic processes are viewed as development patterns resulting from the interaction between diverse organizational agents, e.g., the top management team, the middle managers, dominant coalitions, knowledge workers, and knowledge communities (Lovas and Ghoshal, 2000; Nonaka and Takeuchi, 1995; Senge, 1990). Another key variable in learning theories is the social environment, because the organization is seen as an open system which interacts with the social environment in which it is integrated (Wilkens, Menzel, and Pawlowski, 2004), which gains a growing importance with recent theories of open innovation (Chesbrough, 2003, 2006).

Nonaka, Toyama, and Konno (2000) argue that through the cultivation of dynamic capabilities, such as organizational knowledge creation, SECI (socialization, externalization, combination, and internalization), and shared context in motion, firms will achieve competitive advantage. SECI are conceptualized as the conversion processes between tacit and explicit knowledge, which help synthesize subjective values into objective and shared knowledge. This process begins with the acquisition of tacit knowledge about customers and competitors (socialization), which is then externalized through dialog, where tacit knowledge is converted into explicit knowledge that can be shared within the firm, it is diffused throughout the firm and combined with other knowledge, being subsequently internalized by the employees (Nonaka, Toyama, and Konno, 2000).

It should be pointed out that there is not a unique and universal process by which organizations learn and, so, organizations might learn actively or passively, by their own initiative or through force, as a luxury or by necessity, systematically or by trial and error, through long-term or short-term feedback from a dynamic or stable environment (Sinkula, Baker, and Noordewier, 1997).

Knowledge about markets and technology represent two strands of procedural knowledge (i.e., knowledge about the procedures for how to do things which arises from experience with similar situations) that potentially have strong performance implications, because they increase the ability to discover and exploit opportunities (Wiklund and Shepherd, 2003).

III.3 Research questions and purpose of the study

In this study, we begin by applying two models that have already been used in other business contexts, to Knowledge Intensive Business Services, in order to validate if the proposed conclusions remain valid in this new setting. These models analyze the relationship between entrepreneurial and market driven firms and the implications for firm performance (see chapter V) and the link between MO and LO and the effects on firm performance (see chapter VI).

Moreover, we contribute to the existing literature through the integration of SOs and dynamic capabilities to explain firm performance, which illustrates how the interactions of a firm with various sources of knowledge affect a firm's internal resources and capabilities. Some of the mentioned SOs may well be conflicting, for example, when customer preferences are not certain, it may not be appropriate to follow customer demands but instead to focus on advanced technology and new products to shape customer preferences (Zhou, Yim, and Tse, 2005).

Nevertheless, we advocate that it is important to adopt an integrated approach to the study of SOs, because we are convinced this is a more realistic approach than previous studies that examined bivariate relationships between each of the SOs separately, or between one of the SOs and firm performance. It is also our view that several SOs are not incompatible and that they can actually coexist.

On the other hand, there is a claim for a change in the focus of research about SOs, moving from the study of direct effects on business performance to the study of several combinations of SOs that firms can choose in different situations (e.g., Grinstein, 2008). Therefore, we intend to determine the direct and indirect effects, through dynamic capabilities, of each of the considered SOs on firm performance.

As such, our hypotheses are the following:

1. Direct effects

EO-Firm performance

H1a: There is a positive relationship between EO and firm performance

MO-Firm performance

H1b: There is a positive relationship between MO and firm performance

LO-Firm performance

H1c: There is a positive relationship between LO and firm performance

Dynamic Capabilities-Firm performance

H1d: There is a positive relationship between dynamic capabilities and firm performance

2. Indirect effects

EO-Firm performance (through DC)

H2a: There is a positive relationship between EO and firm performance, through dynamic capabilities

MO-Firm performance (through DC)

H2b: There is a positive relationship between MO and firm performance, through dynamic capabilities

LO-Firm performance (through DC)

H2c: There is a positive relationship between LO and firm performance, through dynamic capabilities

3. Total effects

EO-Firm performance

H3a: There is a positive relationship between EO and firm performance, considering both direct and indirect effects

MO-Firm performance

H3b: There is a positive relationship between MO and firm performance, considering both direct and indirect effects

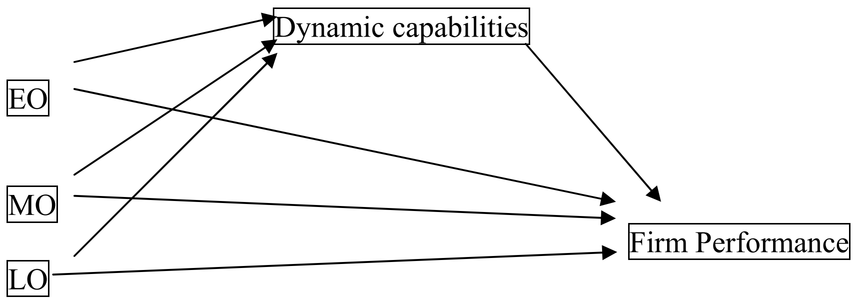
LO-Firm performance

H3c: There is a positive relationship between LO and firm performance, considering both direct and indirect effects

We also controlled for firm age, firm size, and type of KIBS. Our conceptual model can be represented as follows.

III.4 Conceptual model

Figure 1 – Conceptual model



In our conceptual model three predictor variables – EO, MO, and LO – are postulated to drive DC directly, and firm performance in direct and indirect ways. DC are also expected to directly influence firm performance. Although SOs are related, it is assumed that they are empirically distinct, as it has been demonstrated in previous studies.

III.5 Reasons for choosing Knowledge Intensive Business Services

One of the reasons for choosing services, and more narrowly, KIBS as our object of study was the fact that there are still few studies of KIBS, as compared to studies of manufacturing firms, although there have been a growing number of studies focusing on KIBS in the past years. Besides, to our best knowledge, there is no study that aims to relate the SOs of firms with their dynamic capabilities and their performance in the sector of KIBS.

Moreover, one of the factors that lead to the emergence of the concept of dynamic capabilities was precisely the fact that the argument of firm's capabilities as the main source of competitive advantage did not hold true for firms operating in turbulent environments (Wang and Ahmed, 2007) or in high-technology industries such as semiconductors, information services, and software (Teece, Pisano, and Shuen, 1997), which is also the case of KIBS.

Another reason for examining KIBS was the recognition of the need to study this sector using non-traditional models. In the field of innovation, for instance, traditional models assume that innovations are generated by an internal R&D organization and that innovations can be exploited through large scale mass production (Muller and Doloreux, 2009), emphasizing technological innovation. What the literature on KIBS concludes is that the emphasis should be placed on organizational innovations, which might have a technological dimension but frequently result from a combination of technological and soft skills (Muller and Doloreux, 2009).

Within the last decades, the service sector has turned more important in most of the world's economies. In Portugal, in particular, this sector contributed by 68.4% to the total number of enterprises, in 2004, growing to 78.0% in 2005, 79.1% in 2006, 79.6% in 2007 and 81.0% in 2008 (INE, 2006, 2007, 2008, 2009, 2010). The service sector is predominant not only considering the number of enterprises, but also in what concerns the number of employees and the turnover[18]. Since 1995 the composition of the economy's total Gross Value Added has changed considerably, in Portugal, showing a higher relative weight of services and a considerable decline of the weights of industry and agriculture (INE, 2008).

Beyond these economic developments, in recent years the internal structure of the service sector has continuously changed. According to Horgos and Koch (2008), these changes include a process of continuous diversification, a shift from personal services to business (producer) services, growing degrees of sophistication and innovation both in services and in service firms, and a certain indefinition of subsectoral boundaries since firms act more at the interfaces between subsectors and provide services and goods from different areas.

The main differentiator of services from other sectors is the participation of the user in the process of production and delivery, as well as its intangible nature, and this is even more relevant in the case of KIBS (Barras, 1990; Sundbo and Gallouj, 2000), which leads to interactive learning processes with multiple players in the innovation system (Den Hertog, 2000; Strambach, 2002).

[18] In 2008, 81.0% of the enterprises in Portugal belonged to the service sector, employing 65.0% of the total number of employees and generating 61.0% of the total turnover (INE, 2010).

A lot has been written about the service sector, but services do not actually constitute a homogeneous group. As Miles, Kastrinos, Flanagan, Bilderbeek, den Hertog, Huntink, and Bouman (1995) note, the classification of the "quaternary sector", or "high-tech services", or "the advanced services sector"[19] or the KIBS (as they are generally termed nowadays) is useful for understanding technological trajectories and innovation dynamics of diverse groups of services. The classification of KIBS enables to distinguish some services from an amalgam of relatively undifferentiated services and, in terms of innovation it enables to identify different patterns of diversity and change.

A decade ago, scholars have started considering KIBS as true innovators (Cainelli, Evangelista, and Savona 2006; Czarnitzki and Spielkamp, 2003; Gallouj and Weinstein, 1997; Larsen, 2000; Muller and Zenker, 2001). Today the question is no longer if services innovate ("That services can be innovative is no longer at issue", Miles, 2001, p. 16), but how innovative are services and which services are most innovative. For instance, Tether and Hipp (2002) concluded that KIBS are distinct from other services relatively to innovation, spending significantly more on innovation (per employee) than their less knowledge intensive counterparts.

The study of services innovation has given growing importance to the role of innovation networks and systems, as it happens with innovation studies in general. This way, researchers have been given a growing importance to collaborative activity (ranging from joint ventures to joint R&D projects, among others), instead of focusing on the efforts of individual entrepreneurs or inventors or pioneering firms (Miles, 2001). Nevertheless, there is a recognition that services in general are poorly articulated into innovation systems (Miles, 1999), and this is also true to KIBS (Miles, 2001).

KIBS are defined as services that rely upon professional knowledge; have employment structures where scientists, engineers and experts of all types are the majority; they either supply products which are sources of information and knowledge to their users or use their knowledge to produce services which are inputs to their clients' own knowledge generating and information processing activities; and have other businesses

[19] At the beginning of the 1990s, scholars also termed KIBS as "consultancy firms" or "business services".

as their main clients (Miles, Kastrinos, Flanagan, Bilderbeek, den Hertog, Huntink, and Bouman*,* 1995, p. 28). Thus, KIBS are usually identified as purchasers of knowledge, providers of knowledge and transferors of knowledge. Miles, Kastrinos, Flanagan, Bilderbeek, den Hertog, Huntink, and Bouman (1995) state there are two main types of business services – those featuring physical functions (e.g., storage, transport, repair and maintenance) and those providing information and knowledge functions (e.g., computer services, R&D, consultancies, etc.).

Hence, Miles, Kastrinos, Flanagan, Bilderbeek, den Hertog, Huntink, and Bouman (1995) proposed that "traditional professional services" (p-KIBS) were distinguished from "new technology-based services" (t-KIBS). This distinction is displayed in the following table based in the relevant existing research (Freel, 2006; Horgos and Koch, 2008; Miles, Kastrinos, Flanagan, Bilderbeek, den Hertog, Huntink, and Bouman*,* 1995; Nahlinder and Hommen, 2002). Because the extant studies rely on earlier versions of industry classifications (namely NACE[20] Rev. 1 or Rev. 1.1), we made a conversion of the NACE (rev. 1.1) to NACE (rev. 2)[21], which has a high degree of convergence with CAE[22] (rev. 3).

In general terms, the KIBS sector includes computer and related activities, research and development, and other business services. In the following table, these sectors are presented in a disaggregated way, i.e., in classes which are the most detailed categories in NACE. Classes group together activities that share a common process for producing goods or services, using similar technologies (European Commission, 2008). Because a firm may perform one or more economic activities described in one or more categories of NACE, a distinction is made between principal, secondary and ancillary activities.

The principal activity of a statistical unit is the activity which contributes most to the total value added of that unit. A secondary activity is any other activity of the unit,

[20] NACE is the acronym for "Nomenclature statistique des activités économiques dans la Communauté européenne" (statistical classification of economic activities in the European Community).
[21] This conversion was made through the document "NACE Rev. 2 structure and correspondences with NACE Rev 1.1 and ISIC Rev. 4" accessed through the Web site http://circa.europa.eu/irc/dsis/nacecpacon/info/data/en/index.htm.
[22] CAE is the acronym for "Classificação das Actividades Económicas" (statistical classification of economic activities in Portugal).

whose outputs are goods or services which are suitable for delivery to third parties, where the value added of a secondary activity must be less than that of the principal activity. Principal and secondary activities are generally carried out with the support of a number of ancillary activities, such as accounting, transportation, storage, purchasing, sales promotion, and repair and maintenance, among others. Thus, ancillary activities are those that exist to support the principal or secondary economic activities of a unit, by providing goods or services for the use of that unit only (European Commission, 2008). In the present study, we selected firms which perform a principal activity in the KIBS sector.

Table 5 – Technical KIBS

NACE (Rev. 1.1)	NACE (Rev. 2)	Description (NACE Rev. 2)
72.10	62.02	Information technology consultancy activities
72.21	58.21	Publishing of computer games
72.21	58.29	Other software publishing
72.22	62.01	Computer programming activities
72.22	62.02	Information technology consultancy activities
72.30	62.03	Computer facilities management activities
72.30	63.11	Data processing, hosting and related activities
72.40	58.11	Book publishing
72.40	58.12	Publishing of directories and mailing lists
72.40	58.13	Publishing of newspapers
72.40	58.14	Publishing of journals and periodicals
72.40	58.19	Other publishing activities
72.40	58.21	Publishing of computer games
72.40	58.29	Other software publishing
72.40	60.10	Radio broadcasting
72.40	60.20	Television programming and broadcasting activities
72.40	63.11	Data processing, hosting and related activities
72.40	63.12	Web portals
72.50	33.12	Repair of machinery
72.50	95.11	Repair of computers and peripheral equipment
72.60	62.09	Other information technology service activities
73.10	72.11	Research and experimental development on biotechnology
73.10	72.19	Other research and experimental development on natural sciences and engineering
73.10	72.20	Research and experimental development on social sciences and humanities
74.20	71.11	Architectural activities
74.20	71.12	Engineering activities and related technical consultancy
74.20	74.90	Other professional, scientific and technical activities n.e.c.
74.30	71.20	Technical testing and analysis

Source: Prepared by the author.
Note: n.e.c.: not elsewhere classified.

Table 6 – Professional KIBS

NACE (Rev. 1.1)	NACE (Rev. 2)	Description (NACE Rev. 2)
73.20	72.20	Research and experimental development on social sciences and humanities
74.11	69.10	Legal activities
74.12	69.20	Accounting, bookkeeping and auditing activities; tax consultancy

74.13	73.20	Market research and public opinion polling
74.14	2.40	Support services to forestry
74.14	70.21	Public relation and communication activities
74.14	70.22	Business and other management consultancy activities
74.14	74.90	Other professional, scientific and technical activities n.e.c.
74.14	85.60	Educational support services
74.40	73.11	Advertising agencies
74.40	73.12	Media representation services

Source: Prepared by the author.
Note: n.e.c.: not elsewhere classified.

The first detailed definition of KIBS was proposed by Miles, Kastrinos, Flanagan, Bilderbeek, den Hertog, Huntink, and Bouman (1995), following the studies of Barras (1986, 1990) and Soete and Miozzo (1990). Other definitions of KIBS are as follows. Toivonen (2006, p. 2) defines KIBS as "expert companies that provide services to other companies and organizations". Den Hertog (2000, p. 505) defines them as "private companies that rely heavily on professional knowledge, i.e., knowledge or expertise related to a specific (technical) discipline or (technical) functional-domain to supply intermediate products and services that are knowledge based". Bettencourt, Ostrom, Brown, and Roundtree (2002, p. 100) define KIBS as "enterprises whose primary value-added activities consist of the accumulation, creation, or dissemination of knowledge for the purpose of developing a customized service or product solution to satisfy the client's needs".

The central features of KIBS are, according to Horgos and Koch (2008), the significance of knowledge (both tacit and codified) and the resulting innovative activities (knowledge intensity), the orientation of services towards other organizations and the resulting relevance of interactivity, and the importance of spatial proximity between KIBS firms and their providers and clients.

According to Muller and Doloreux (2009), two phases of development can be found in the study of KIBS, in what concerns innovation. The first one includes mostly theoretical studies that recognize KIBS as a unique sector, and when compared to other branches of services, "is often highly innovative in its own right, as well as facilitating innovation in other economic sectors, including both industrial and manufacturing sectors" (Miles, Kastrinos, Flanagan, Bilderbeek, den Hertog, Huntink, and Bouman, 1995). The second phase has more of an empirical concern, and tries to answer two specific questions: (1) do KIBS innovate? and (2) do KIBS innovate differently from manufacturing?

Muller and Doloreux (2009) write that these studies are relatively consensual about the nature of KIBS as major innovators and recognize that innovative activities in KIBS are distinct from those in manufacturing firms (Camacho and Rodriguez, 2005; Freel, 2006; Sundbo and Gallouj, 2000; Tether, 2005; Todtling, Lehner, and Trippl, 2006); These scholars conclude that KIBS are more intensively engaged in innovation and training activities than manufacturing firms, but they are less likely to collaborate with international partners or perform internal R&D; KIBS innovativeness is strongly associated with highly qualified employees and intense collaboration with local customers and suppliers, when compared with manufacturing firms; Also, while manufacturing firms produce outputs which contain a high degree of codified knowledge, KIBS outputs contain a high degree of tacit knowledge (Muller and Doloreux, 2009).

Hence, KIBS are no longer seen as transferors of information but as interfaces between their clients' tacit knowledge base and the wider knowledge base of the economy, where the knowledge in question results from a co-production process which intimately involves their clients (Muller and Doloreux, 2009). In particular, Den Hertog (2000) and Bettencourt, Ostrom, Brown, and Roundtree (2002), quoted by Muller and Doloreux (2009), stress the almost symbiotic relationship between KIBS and client firms, pointing to the significance of non-technological factors in innovation, such as new service concepts, client interfaces, and service delivery systems. As a result, KIBS are viewed as facilitators, carriers, and sources of innovation. Other scholars, as observed by Horgos and Koch (2008), have claimed that specialised knowledge and cumulative learning processes are key features of innovative business services, which implies that an intense interaction must exist between service suppliers and clients (Johannisson, 1998; Lundvall, 1998; Strambach, 2002).

III.6 Sample size

To obtain a reliable regression model, one of the researcher's concerns is to collect enough data, so one of our first questions was what size should our sample have in order to achieve a reliable model. Some rules of thumb indicate we should have 10 cases of data for each predictor in the model while others suggest 15 cases for each predictor (Field, 2009). Therefore, with four predictors, we should have from 40 to 60 cases.

Green (1991), cited in Field (2009), claims that the minimum acceptable sample size can be calculated as follows: if the aim of the researcher is to test the model overall, the sample should have at least $50 + 8k$, where k is the number of predictors. If the aim is to test the individual predictors, the sample should have at least $104 + 8k$. If the researcher wants both to test the overall fit and to analyze the contribution of individual predictors, both of the minimum sample sizes should be calculated and then the option should go for the largest value. Following this advice, our sample should have 136 cases.

Field (2009) also suggests that the sample size required depends on the size of the effect (that is, how well the predictors predict the outcome) and how much statistical power we want to detect those effects. Following Miles and Shevlin (2001), Field (2009, p. 223) presents a graph that summarizes the required sample sizes to meet the mentioned criteria and to achieve a high level of power. According to this graph, considering a large effect, our sample should have approximately 50 cases; with a medium effect, it should have approximately 90 cases; and if we expect to find a small effect, then our sample should have more than 600 cases.

Considering this, a random sample of 750 firms, stratified on the 4-digit sectoral level, was drawn and their actual top managers were reached by e-mail. Altogether, 209 valid responses were received resulting in a quite satisfactory rate of return of 27.9%. The response rate was slightly higher than that reported by some scholars in this investigation area (Barrett, Balloun, and Weinstein, 2000; Covin and Slevin, 1989; Hambrick, Geletkanycz, and Fredrickson, 1993; Zahra, 1991)[23].

[23] Hambrick, Geletkanycz and Fredrickson (1993), for instance, refer a typical range from 10% to 12% for mailed surveys targeted at top executives.

III.7 Participants

A total of 750 Portuguese Small and Medium Enterprises in the sector of Knowledge Intensive Business Services (KIBS) were identified from the BvDEP's[24] SABI Database. SABI Database contains information about company accounts, ratios, activities, ownership and management for 1.1 million Spanish and 320.000 Portuguese companies.

We only selected Micro, Small and Medium-sized Enterprises, according to the SME European definition adopted by the European Commission in its Recommendation of 6 May (2003/361/EC), that is, enterprises with less than 250 employees and with an annual turnover under 50 millions Euros or with an annual balance sheet which does not exceed 43 millions Euros. In other words, SME must fulfill the requisites present in the following table:

Table 7 – SME definition adopted by the European Commission

Category	Headcount	Annual Turnover	Annual Balance Sheet Total
Micro Enterprise	< 10	<= EUR 2 million	<= 2 EUR million
Small Entreprise	< 50	<= EUR 10 million	<= 10 EUR million
Medium Entreprise	< 250	<= EUR 50 million	<= 43 EUR million

Source: European Commission, Recommendation of 6 May (2003/361/EC).

Our option of selecting only SMEs respects the great importance of these enterprises in the whole economy. In Portugal, similarly to what happens in the European Union (EU), the production structure has been determined by the relative importance of SMEs. As we can observe in recent data, during the period 2004-2007, the share of enterprises with less than 10 persons employed in total enterprises was over 95.0% at all times (INE, 2009). In 2008, there were 349.756 SMEs in Portugal, set up as companies in terms of their legal form, which represented 99.7% of the enterprises (not considering the financial-enterprises) and overall, the average size of enterprises in 2008 was 6.2 persons employed (INE, 2010).

Micro, small and medium-sized enterprises represent 99% of all enterprises in the EU, providing around 65 million jobs. Within the group of SMEs, the vast majority of the

[24] Bureau van Dijk Electronic Publishing.

enterprises (92%) are micro enterprises, employing less than 10 persons. The typical European firm is a micro firm. With the exception of Liechtenstein, the same holds for EU partner countries (Audretsch, Horst, Kwaak, and Thurik, 2009).

The size of the inquired population was 22.733 firms[25]. The sample was stratified and randomly selected, making use of a table of random numbers. Because the BvDEP's SABI Database does not contain the companies' e-mails, after selecting the firms we searched the Internet to find them. Among the selected 750 firms, we could not find the e-mails of 50 firms, reason why we replaced them by another 50 firms of the same sub-sectors, which were also randomly selected. This situation has probably led to the non inclusion of some micro enterprises because most of them do not possess an e-mail that can be accessed on the Internet.

Our sample is detailed in the tables below.

Table 8 – P-KIBS

NACE Rev. 2	Description (NACE Rev. 2)	Nr. of SMEs in SABI	Nr. of SMEs in the sample	Average Nr. of Employees[26]	Average Turnover (Euros)[27]	Nr. of Responses	% of Responses
	A - AGRICULTURE, FORESTRY AND FISHING						
2.40	Support services to forestry	189	6	16	3.561.432	2	33%
	M- PROFESSIONAL, SCIENTIFIC & TECHNICAL ACTIVITIES						
69.10	Legal activities	37	1	7	728.535	1	100%
69.20	Accounting, bookkeeping and auditing activities; tax consultancy	6847	226	13	702.902	59	26%
70.21	Public relation and communication activities	28	1	1	27.256	0	0%
70.22	Business and other management	3963	131	10	971.695	34	26%

[25] This is the number of KIBS that belong to SABI's database, not the whole population of KIBS that exist in Portugal.
[26] Average number of employees of the firms pertaining to the sample.
[27] Average turnover of the firms pertaining to the sample.

	consultancy activities						
72.20	Research and experimental development on social sciences and humanities	30	1	4	132.202	0	0%
73.11	Advertising agencies	1541	51	6	639.265	20	39%
73.12	Media representation services	249	8	6	770.222	2	25%
73.20	Market research and public opinion polling	169	6	20	3.286.402	4	67%
74.90	Other professional, scientific and technical activities n.e.c.	390	13	8	689.315	5	38%
	P - EDUCATION						
85.60	Educational support services	9	0	-	-	0	0%
Total		13452	444			127	

Source: Prepared by the author.
Note: n.e.c.: not elsewhere classified.

Table 9 –T-KIBS

NACE Rev. 2	Description (NACE Rev. 2)	Nr. of SMEs in SABI	Nr. of SMEs in the sample	Average Nr. of Employees[28]	Average Turnover[29]	Nr. of Responses	% of Responses
	C - MANUFACTURING						
33.12	Repair of machinery	690	23	14	1.192.352	6	26%
	J - INFORMATION AND COMMUNICATION						
58.11	Book publishing	222	7	15	2.195.954	2	29%
58.12	Publishing of directories and mailing lists	1	0	-	-	0	0%
58.13	Publishing of newspapers	186	6	17	1.194.650	2	33%
58.14	Publishing of journals and periodicals	281	9	8	693.580	2	22%
58.19	Other publishing activities	84	3	6	318.874	1	33%
58.21	Publishing of computer games	1	0	-	-	0	0%
58.29	Other software publishing	264	9	7	468.033	3	33%

[28] Average number of employees of the firms pertaining to the sample.
[29] Average turnover of the firms pertaining to the sample.

60.10	Radio broadcasting	83	3	22	1.289.336	1	33%
60.20	Television programming and broadcasting activities	8	0	-	-	0	0%
62.01	Computer programming activities	1063	35	13	599.538	10	29%
62.02	Information technology consultancy activities	568	19	25	2.013.736	4	21%
62.03	Computer facilities management activities	11	0	-	-	0	0%
62.09	Other information technology service activities	475	16	7	526.942	6	38%
63.11	Data processing, hosting and related activities	149	5	15	1.161.579	2	40%
63.12	Web portals	8	0	-	-	0	0%
71.11	Architectural activities	2017	67	6	625.435	14	22%
71.12	Engineering activities and related technical consultancy	2666	88	15	1.081.430	21	24%
71.20	Technical testing and analysis	343	11	8	484.633	4	36%
72.11	Research and experimental development on biotechnology	5	0	-	-	0	0%
72.19	Other research and experimental development on natural sciences and engineering	59	2	3	50.832	2	100%
95.11	Repair of computers and peripheral equipment	97	3	6	424.464	2	67%
Total		9281	306			82	

Source: Prepared by the author.
Note: n.e.c.: not elsewhere classified.

III.8 Development of the questionnaire and measures used

The use of survey data is considered appropriate in the investigation of competitive strategies and innovation attitudes at the firm level, especially in the service sector where innovation processes are characterized by intangible output, strong interaction and customization between user and supplier, 'high quality labour' intensity, and strong usage of ICT (Corrocher, Cusmano, and Morrison, 2009). Taking this into consideration, we developed a questionnaire partly by using existent measurement scales, which were translated into Portuguese. Following the recommendation of Jantunen, Puumalainen, Saarenketo, and Kylaheiko (2005), we used a back-translation procedure involving a native English speaker to ensure that the meanings of the item statements were not altered.

We performed several tasks related to the pre-test and validation of the research instrument. First, face validity of the constructs was assessed with the cooperation of academics belonging to the scientific area of economics and business management. Then, a pilot test was conducted with 10 firms of varying size in the KIBS sector, with the objective of evaluating the new items developed for the present research, to ensure their clarity and their relevance, to assure accuracy and content validity, which resulted in the suggestions reported below.

Related to the measures of outcome, we were advised to add an item reporting to the customer value, as well as an item reporting the social responsibility of the company as viewed by the external/internal audience. We also received a few comments about the scale ranging from 1 to 5, namely the difficulty in choosing the extreme values, and the numbering of the questions (for example, there is a 2.1.a, 2.1.b and 2.1.c because 2.1 regards to the innovativeness dimension of EO; 2.2.d, 2.2.e and 2.2.f regards to the proactiveness dimension of EO; and 2.3.g, 2.3.h and 2.3.i regards to the risk-taking dimension of EO; because the respondent does not know the dimensions of the construct which are involved, for her/him it is not obvious, and perhaps not even logical, why we use this numbering).

As some scholars argue that the real sources of competitive advantage are usually well hidden, making it impossible for a researcher to measure them completely objectively, following the advice of Cater and Pucko (2006) we tried to overcome this problem by asking the top managers what are their views about these issues. Thus, in this research we decided to ask top managers, not which are the competitive advantages of their firms, but if their firms perform better than their competitors.

Therefore, taking into consideration that CEOs or highest-ranking managers are typically the persons that know more about their firms' strategies and overall business situations (Zahra, 1996; Zahra and Covin, 1995; Zahra, Nielsen, and Bogner, 1999) and some of the considered measures, namely EO, are normally operationalized from the perspective of the CEO (Covin and Slevin, 1989; Wiklund and Shepherd, 2003), we decided to rely on top managers in our data collection. Several scholars share this view, for instance Morgan and Strong (1998) state that an analysis of the mental models of senior management can explain the views on the pursuit of competitive advantage and culture-like elements of the firm such as SOs (Noble, Sinha, and Kumar, 2002).

In order to maximize the data accuracy and reliability, we followed Huber and Power's (1985) guidelines about how to get quality data from single informants. These scholars suggest to identify the most knowledgeable person about the issue of interest, in the case of only one informant is to be questioned per organization. Relative to this, in our cover letter sent to selected firms, we asked for the questionnaire to be answered by a top manager, given the nature of the questions.

Huber and Power (1985) also propose some motivational strategies in order to achieve the manager's participation. Related to this issue, they advice the researcher to try to motivate the informants to co-operate with the researcher, removing as many disincentives to responding as possible (ensuring anonymity and confidentiality of responses, telling how long it will take to provide the required information, and being explicit and simplistic), and explaining how the research results can be useful both to the manager, the organization, the strategic management field, and the researcher. These motivational strategies were also ensured in our cover letter, as can be confirmed in appendices 1 and 2. In order to enhance the accuracy of the data provided, Huber and Power (1985) suggest minimizing the elapsed time between the events of interest and the collection of data, considering the structuring of questions because it can affect the answers received, and using questions that are pretested, structured and that give the impression of being rich in information content without being complex. All this was done in the present research.

In order to minimize social-desirability bias in the measurement of the constructs, the cover letter pointed out that there were no right or wrong answers, as suggested in Zahra and Covin (1995) and Huber and Power (1985). The respondents were asked to recall the situation in their firms during a recent period in order to avoid recollection errors.

We also adopted "scale reordering" as suggested by Salancik and Pfeffer (1977), in order to reduce the sequency effects of consistency. Thus, we arranged the items so that the measures of the dependent variable follow those of the independent variables, i.e., the measures of firm performance come after those related to SOs and dynamic capabilities.

Of the total 22.733 companies in the sector of KIBS identified from the BvDEP's[30] SABI Database, 750 were reached by e-mail to answer the questionnaire, which could be accessed online. The link to the pre-tested and validated survey questionnaire, along with a "cover letter" describing the purpose of the research, was e-mailed to the selected 750 firms on the 3rd and 4th September 2009. A reminder e-mail was sent to the selected 750 firms on the 25th September 2009 and another one on the 8th October 2009. Consequently, we received 81 responses after the first e-mail, another 73 additional responses after the second one, and finally we obtained a total of 219 responses after the last e-mail. Only ten responses were not included in our analyses because the questionnaires were incomplete or included inadequate data or because the NACE codes of the respondent firms did not belong to KIBS.

Overall, a total of 209 valid responses were received, yielding a quite satisfactory response rate of 27.9%. Non-response bias was assessed on a number of variables (by comparing early and late respondents) and there was no evidence of non-response bias.

Most of our respondents have senior positions in the firm (31.6% reported to be top managers (other than CEOs), 31.6% reported to be middle managers, 24.4% had the title of CEO, 11.5% reported to be supervisors, and 0.9% did not answer this question).

The questionnaire contained several sections with measures for MO, EO, LO, and dynamic capabilities, as well as performance metrics. We detail these measures in the next section.

[30] Bureau van Dijk Electronic Publishing.

III.8.1 Entrepreneurial orientation

A review of the literature revealed several dimensions of EO. According to Miller (1983), the firm's degree of entrepreneurship can be seen as the extent to which it take risks, innovate and act proactively. This scale appears in Miller and Friesen (1982). Zahra and Neubaum (1998) cite Miller's (1983) scale, arguing this is the most widely recognised measure of the construct EO, which consists of the following items:

"*This company:*
- rewards taking calculated risks;
- shows a great deal of tolerance for high risk projects;
- uses only "tried and true" procedures, systems or methods (reverse scored);
- challenges, rather than responds to, its major competitors;
- spends more time on long-term R&D (3+ years) than on short-term R&D;
- takes bold, wide-ranging strategic actions, rather than minor changes in tactics;
- usually is among the first to introduce new products to the industry".

Miller's (1983) scale was subsequently developed by Covin and Slevin (1988, 1989). According to Jantunen, Puumalainen, Saarenketo, and Kylaheiko (2005), the scale of Covin and Slevin (1989) is widely used.

Covin and Slevin (1989) propose a nine-item scale, where the items are the following ones:

"Innovativeness

Generally our company prefers to…:

a. Strongly emphasize the marketing of the company's present products	*Strongly emphasize R&D*

How many new kinds of products or services has your company introduced over the past 5 years?

b. A lot of new products/services	*No new products/services*
c. The changes of the company's products/services have been radical	*There has been small changes of the present products/services*

Proactiveness

Our company's relation toward competitors:

d. Normally we react upon initiatives taken by our competitors	*Normally we initiate changes upon which our competitors react*
e. Our company is seldom the first one to introduce new products or services, administrative systems, methods of production, etc.	*Our company is very often the first company to introduce new products/ services, administrative systems, methods of production, etc.*
f. Normally our company tries to avoid overt competition, but rather takes on a "live-and-let-live" -position	*Normally our company takes a very competitive oriented "beat-the-competitor"-position*

Risk-Taking

Generally our company has…

g. A strong tendency toward projects with low risk (with normal and secure yield)	*A strong tendency toward getting involved in high risk projects (with a chance for high yield)*

Generally we believe that…

h. The business environment of the company is such that fearless and powerful measures are needed to obtain the company's objectives	*The business environment of the company is such that it is better to explore it carefully and gradually in order to achieve the company's objectives*

When we are facing insecure decision-making situations…

i. *We normally take up a fearless, aggressive position, in order to maximize the chance of being able to exploit possible opportunities*	*We normally take up a cautious "wait-and-see" position in order to minimize the hazard of making costly erroneous decisions.*

We decided to rely on Covin and Slevin (1989) nine-item scale. We detail the dimensions of this scale in chapter IV.

III.8.2 Market orientation

Diamantopoulos and Cadogan (1996) state that three conceptualizations and operationalizations of MO (Deshpandé, Farley, and Webster, 1993; Kohli and Jaworski, 1990; Narver and Slater, 1990) prevail in the marketing literature, appearing to be interchangeable (Deshpandé and Farley, 1998).

The MARKOR scale (Kohli, Jaworski, and Kumar, 1993) is a well-know one and it consists of:

1. Intelligence generation:
- *in this business unit, we meet with customers at least twice per year to find out what products or services they will need in the future*
- *in this business unit, we do a lot of in-house market research*
- *we are slow to detect changes in our customers' product preferences*
- *we poll end users at least twice per year to assess the quality of our products and services*
- *we are slow to detect fundamental shifts in our industry (e.g., competition, technology, regulation)*
- *we frequently review the likely effects of changes in our business environment (e.g., regulation) on customers*
2. Intelligence dissemination:
- *we have interdepartmental meetings at least once a quarter to discuss market trends and developments*
- *marketing personnel in our business unit regularly schedule meetings to discuss customers' future needs with other functional departments*
- *when something important happens to a major customer or market, the whole business unit is informed about it within a short period*
- *data on customer satisfaction are disseminated at all levels in this business unit on a regular basis*
- *when one department finds out something important about competitors, it is slow to alert other departments*
3. Responsiveness:
- *we are slow to decide how to respond to our competitors' price changes*

- *for one reason or another we tend to react slowly to changes in our customers' product or service needs*
- *we constantly review our product development efforts to ensure that they are in line with what customers want*
- *several departments get together periodically to plan a response to changes taking place in our business environment*
- *if any competitor were to launch an intensive campaign targeted at our customers, we would implement a response immediately*
- *the activities of the different departments in this business unit are well coordinated*
- *the positive resolution of all customer complaints is not a top priority in this business unit*
- *even if we came up with a great marketing plan, we would probably not implement it in a timely fashion*
- *when we find that customers would like us to modify a product or service, the departments involved make a concerned effort to do so.*

Because of the length of the scales, we considered the nine-item scale (Deshpandé, Farley, and Webster, 1993) the most adequate one. It consists of the following items:

"- *we have routine or regular measures of customer service;*
- *our development is based on good market and customer information;*
- *we know our competitors well;*
- *we have a good sense of how our customers value our products and services;*
- *we are more customer-focused than our competitors;*
- *we compete primarily based on product and service differentiation;*
- *the customer's interest should always come first, ahead of the owners';*
- *our products/services are the best in the business;*
- *I believe this business exists primarily to serve customers*".

Although this scale is seen as a measure of "customer orientation", Deshpandé, Farley, and Webster (1993) argue that customer and market orientations are synonymous, defining them as "the set of beliefs that puts the customer's interest first, while not excluding those of all other stakeholders such as owners, managers, and employees, in order to develop a long-term profitable enterprise" (Deshpandé, Farley, and Webster, 1993, p. 27). Hence, MO is seen as a part of the overall corporate culture.

One question that should be taken into consideration is who is being questioned relative to MO, i.e., if we should base the measurement of MO on the perceptions of the supplier or those of the customer or those of the firm's managers. Because several scholars argue that CEOs are the most knowledgeable persons in what concerns SOs (Zahra, 1996; Zahra and Covin, 1995; Zahra, Nielsen, and Bogner, 1999), and to measure the other constructs we have decided to rely on the views of top managers, we also chose to inquire CEOs about this SO. Nevertheless, we recognize that this could be a limitation of our study considering that Deshpandé, Farley, and Webster (1993) concluded that there is only weak agreement between the customers' and the marketers' perception of MO, in spite of this conclusion has been based on a study of Japanese companies, and the cultural element can influence the results, as the authors themselves recognize.

III.8.3 Learning orientation

LO is one of the dimensions of the learning organization construct (according to Hult, Nichols, Giunipero, and Hurley (2000), the other dimensions are team orientation, systems orientation, memory orientation, customer orientation and relationship commitment). We focused only on LO, for reasons of theoretical consistency and parsimony. Kropp, Lindsay, and Shoham (2006) write that few scales operationalize LO and make reference to four recent empirical papers with operationalizations of LO: Breman, and Dalgic (1998) used a 23-item scale, Baker and Sinkula (1999b) adapted a previous scale, reaching an 18-item scale, Hult, Nichols, Giunipero, and Hurley (2000) used a 4-item scale, and Zahra, Ireland and Hitt (2000) used a 57-item scale to measure technological learning. We also found another operationalization of learning, a seven-item scale developed by Salavou, Baltas, and Lioukas (2004).

In Baker and Sinkula's (1999b) scale, each respondent evaluates statements using a five-point Likert scale anchored by "strongly disagree" to "strongly agree", and is as follows:

1. Commitment to learning:

- *managers basically agree that our business unit's ability to learn is the key to our competitive advantage*
- *the basic values of this business unit include learning as key to improvement*
- *the sense around here is that employee learning is an investment, not an expense*
- *learning in my organization is seen as a key commodity necessary to guarantee organizational survival*
- *our culture is one that does not make employee learning a top priority*
- *the collective wisdom in this enterprise is that once we quit learning, we endanger our future*

2. Shared vision:

- *there is a well-expressed concept of who we are and where we are going as a business unit*
- *there is a total agreement on our business unit vision across all levels, functions, and divisions*
- *all employees are commited to the goals of this business unit*
- *employees view themselves as partners in charting the direction of the business unit*
- *top leadership believes in sharing its vision for the business unit with the lower levels*
- *we do not have a well-defined vision for the entire business unit*

3. Open-mindedness:

- *we are not afraid to reflect critically on the shared assumptions we have about the way we do business*
- *managers in this business unit do not want their "view of the world" to be questioned*
- *our business unit places a high value on open-mindedness*
- *managers encourage employees to "think outside of the box"*
- *an emphasis on constant innovation is not a part of our corporate culture*
- *original ideas are highly valued in this organization.*

In Zahra, Ireland and Hitt (2000), managers describe the learning their firms had gained using 19 items, that are the following:

- *designing new products (processes)*
- *prototyping new products (processes)*
- *pretesting new products (processes)*
- *timing new product (process) introductions*
- *sequencing new product (process) introductions*
- *customizing products for local markets*
- *manufacturing*
- *sourcing technology*
- *integrating technologies acquired from other companies with your own technologies*
- *organizing the R&D function*
- *staffing the R&D function*
- *determining R&D spending levels*
- *funding new technology*
- *managing the R&D process*
- *coordinating R&D with other organizational units (functions)*
- *identifying emerging technologies*
- *forecasting technological trends*
- *transferring technologies across international borders*
- *protecting your technological trade secrets.*

Because these statements allowed to measure breadth, depth, and speed, this resulted in a 57-item scale.

For reasons of parsimony, Hult, Nichols, Giunipero, and Hurley's (2000) scale was selected. This is a multidimensional scale, with 27 items, that measures six different business orientations (for example, team orientation, systems orientation and LO). In the LO dimension, adapted by Kropp, Lindsay, and Shoham (2006, p. 511), each respondent evaluates statements using a five-point Likert scale anchored by "strongly disagree" to "strongly agree", and is as follows:

"- *The sense is that employee learning is an investment not an expense;*
- *the basic values include learning as a key to improvement;*

- *once we quit learning we endanger our firm;*
- *we agree that the ability to learn is the key to improvement*".

III.8.4 Dynamic capabilities

According to Wang and Ahmed (2007), dynamic capabilities are a high order construct, consisting of different dimensions, namely absorptive, adaptive, and innovative capability. We focused only on the innovativeness dimension of dynamic capabilities, which allows a firm to develop new products, processes, as well as organizational and marketing innovations, because the other components are already subjacent to the considered SOs of the firms. Moreover, some researchers emphasize that innovation management can be seen as a form of organizational and dynamic capability (e.g., Lawson and Samson, 2001).

With this is mind, following Jantunen, Puumalainen, Saarenketo, and Kylaheiko (2005), we concluded it is essential to measure if firms actually implement new strategies, methods, and processes in order to match their internal factors with the requirements of the environment; Though these firms are expected to succeed better, it is also expected that some firms are more competent than others, since there may be substantial differences between organizations in their ability to implement new routines and techniques (Edmondson, Bohmer, and Pisano, 2001); In other words, to be active in changing is necessary but not sufficient; Firms should possess reconfiguring capabilities to be able to seize opportunities (Jantunen, Puumalainen, Saarenketo, and Kylaheiko, 2005).

We could find no existing widely-recognized set of survey items on reconfiguring capabilities (we found one scale developed by Parida (2007), but due to the long number of items, it was not viable to use it in this study). Hence, following Jantunen, Puumalainen, Saarenketo, and Kylaheiko (2005), we relied on the renewal activities listed in the Community Innovation Surveys (CIS) of the European Union.

In fact, this scale does not reflect innovativeness as openness to new ideas considered as part of the organizational culture, but mainly the achievement of new practices or goals.

In this scale, each respondent evaluates statements using a five-point Likert scale anchored by "succeeded poorly" to "succeeded well", also allowing the option of "not implemented", and is as follows:

"*Have you carried out the following renewals in the last three years? If yes, how well did the renewals succeed?:*

"- *implementation of new or substantially changed company strategy;*
- *implementation of new kinds of management methods;*
- *new or substantially changed organizational structure;*
- *new or substantially changed marketing method or strategy;*
- *new or substantially changed technological equipment or manufacturing process;*
- *substantial renewal of business processes;*
- *substantial renewal of production/manufacturing processes*".

III.8.5 Firm performance

Multiple measures of performance can evaluate the success of the firm, and those include objective measures, such as profitability and market share, and subjective ones, such as the degree to which other goals are fulfilled (Kropp, Lindsay, and Shoham, 2006). Performance has two fundamental dimensions, related to effectiveness and efficiency, where the first one refers to the customers' satisfaction degree and the latter refers to the economic utilization of the firm's resources (Neely, 1998). According to Ruekert, Walker, and Roering (1985), performance includes at least three conceptual areas: profitability, market share, and adaptability, where perceived shares and profits, on one hand, and perceived adaptability, on the other form the construct of organizational performance.

Traditionally, performance was measured through financial measures but more and more companies make use of other kinds of measures. In 1996, the Institute of Management Accountants reported that 64% of the firms in the USA were actively testing new ways of evaluating, collecting and reporting non-financial data (Neely, 1998). In today's economy, where intangible assets and skills play a major role as sources of competitive advantage, there is a need for tools that can measure knowledge-based assets and the resulting strategies, and it is recognized that traditional financial measures were more adequate in an economy dominated by tangible assets. The successful use of the BSC (Balanced ScoreCard) in several companies over the past decade indicates that intangibles can be measured (Patton, 2007). However, Yeung, Selen, Sum, and Huo (2006) point out that earlier research indicated that measurement of performance in empirical studies is relatively difficult because it is a matter of subjective judgement and individual preferences, and therefore the best criteria for assessing performance cannot be easily identified (Bourgeois, 1986).

The operationalization of the performance construct is much debated in the literature and some scholars argue that in recent years numerous new performance measurement concepts emerged (Harris and Mongiello, 2001). Despite the numerous works that focused this question, a consensual solution has not been reached yet.

Another question is whether researchers should use objective data or subjective measures, or a combination of the two. Because subjective measures focus on managers' assessment of performance of their firms relative to expectations or competitors, these perceptions already account for competitive and environmental conditions, as well as the particular strategies of a firm, which can be an advantage over objective measures. On the other hand, self-reported measures are frequently used as substitutes of objective measures because it is extremely difficult to collect objective and thus comparable data.

The use of subjective measures may not be a real problem since previous studies have demonstrated statistically significant correlations between perceptual measures and their corresponding objective measures of performance (e.g., Chandler and Hanks, 1993; Dollinger and Golden, 1992; Gupta and Govindarajan, 1984; Murphy and Callaway, 2004; Murphy, Trailer, and Hill, 1996; Pearce, Robbins, and Robinson, 1987). Therefore, these measures based on relative perceptions can be considered reliable indicators and are quite frequent in the literature (e.g., Flynn, Schroeder, and Sakakibara, 1995) as pointed out by Dess and Davis (1984), Kim and Lim (1988), Robinson and Pearce (1988), Slater and Olson (2000), among others.

Next, we present some performance scales which were used in recent empirical works, to illustrate the diversity of measures of firm performance. Zou, Taylor, and Osland (1998) used a five-point Likert scale anchored by "strongly disagree" to "strongly agree". The subjective firm performance scale is presented below.

"Please rate the following statements about your firm:

- *The firm has been very profitable;*
- *The firm has generated a high volume of sales;*
- *The firm has achieved rapid growth;*
- *The performance of this firm has been very satisfactory;*
- *The firm has been very successful;*
- *The firm has fully met our expectations".*

Li and Calantone (1998) used an objective firm performance scale. It is also a five-point Likert scale where respondents are asked to assess the success of their firms relative to competitors in the same market, and it is as follows:

"Please rate the following two statements about your firm in comparison with similar firms in the same market:

- *Before-tax profits (much lower than other firms/ lower than other firms/ about the same as other firms/ higher than other firms/ much higher than other firms);*
- *Return on investment (much lower than other firms/ lower than other firms/ about the same as other firms/ higher than other firms/ much higher than other firms);*

Please estimate the market performance of your firm in comparison with similar firms in the same market:

- *Market share (less than 5 per cent/ 6-10 per cent/ 11-15 per cent/ 16-20 per cent/ over 20 per cent)*
- *Pre-tax profit margin (less than 5 per cent/ 6-10 per cent/ 11-15 per cent/ 16-20 per cent/ over 20 per cent)".*

In Tang, Tang, Zhang, and Li (2007) firm performance was measured with four items where respondents are asked to evaluate their firm's performance relative to their main competitors for the past three years on: (1) sales growth rate; (2) market share; (3) pre-tax profit growth rate; and (4) overall performance. All items were anchored on a five-point Likert scale ranging from "very low" (1) to "very high" (5).

Wiklund and Shepherd (2003) used a five-point Likert scale ranging from "much worse" to "much better", which is presented below.

"I will now mention four measures of outcome. For each of them I want to know if you think that your outcome during the past 3 years has been better, worse or equal to that of other companies in your industry:

- *Net profit (i.e., sales minus operational costs);*
- *Growth of the company's value;*
- *Cash-flow;*
- *Development of sales".*

Pleshko and Nickerson (2008) used a seven-point Likert scale ranging from "terrible" (1) to "excellent" (7), where respondents are asked to choose the number that best describes their perceptions of the firm's performance over the past year. The items are presented below, and include two dimensions, namely perceived performance and perceived adaptability:

"- Profitability versus our potential;
- *Growth of profitability;*
- *Market share versus our potential;*
- *Growth of market share;*
- *Adapting to changing environment;*
- *Adapting to competitive activities;*
- *Adapting to customer needs".*

To measure firm performance, Pleshko (2006) used both market share and profitability indicators, and both perceptual and accounting variables (the accounting variables used were ROA and ROI). Market share is a perceptual indicator measured using a five-item scale, ranging from "poor" (1) to "excellent" (5), as regards five baselines of market share:

- *versus competitors;*
- *versus goals/expectations;*
- *versus previous years;*
- *versus firm potential;*
- *growth.*

The perceptual indicator of profits is derived from five questions, and also evaluates their profit performance relative to competitors, goals/expectations, previous years, firm potential and growth.

In the present research, we chose to use Wiklund and Shepherd (2003) five-point Likert scale. As this scale reflects both sales and profit information, we can say that it measures both effectiveness and efficiency dimensions of performance (Walker and Ruekert, 1987) and because all the items are measured comparing the firm with its competitors, it reflects a firm's relative advantage. To this scale, we added market share, customer value and corporate social responsibility, in order to reflect the several concepts associated with performance. One of the reasons for our adding of new items was the fact that several studies point out the increasing importance of social, human, and intellectual capital in creating competitive advantages and superior firm performance, arguing that we should incorporate stakeholder perspectives in the assessment of this construct (Dess, Ireland, Zahra, Floyd, Janney, and Lane, 2003). On the other hand, the inclusion of market share allows us to capture the ability of the firm to outperform its main competitor, which can also be a measure of competitive advantage. The scale is presented below.

1. *net profit;*
2. *growth of the company's value;*
3. *cash-flow;*
4. *development of sales;*
5. *market share;*
6. *customer value;*
7. *corporate social responsibility as viewed by the external/internal audience.*

The average of these items was used as the firm performance measure. All elements of the measure are taken relative to the organization's major competitors. In fact, several scholars in this investigation area argue that performance is multidimensional and that performance comparisons with competitors reveal important information (Birley and Westhead, 1990).

CHAPTER IV - FACTOR ANALYSIS: RELIABILITY OF THE QUESTIONNAIRE

In the social sciences usually we try to measure things that cannot directly be measured, because they have many facets, i.e., we deal with latent variables. Because a direct measure is not possible, what we can do is try to measure the different aspects of the variable. So in the first place we have to identify the facets that are associated with our construct and, then, use some technique to verify if the identified facets really reflect a single variable. For this, we usually perform a factor analysis.

This technique, which identifies clusters of variables, has three main applications: to understand the structure of a set of variables, to construct a questionnaire to measure latent variable(s), and to reduce a data set to a manageable size but still retaining as much of the original information as possible (Field, 2009).

In factor analysis, when we observe clusters of large correlation coefficients between subsets of variables we can assume that those variables are measuring several aspects of the same underlying dimension (also known as factors or latent variables).

In fact, the scales that we are using (to measure EO, MO, LO, dynamic capabilities and, to some extent, firm performance) have already been tested to ensure they are measuring the mentioned dimensions. So, what we need to do in the first place is to validate our questionnaire, that is, to assess the reliability of our scale or to test its internal consistency. In other words, we need to test if our questionnaire is consistently reflecting the construct that it is measuring. “In statistical terms, the usual way to look at reliability is based on the idea that individual items [individual questions] (or sets of items) should produce results consistent with the overall questionnaire” (Field, 2009, p. 674). For this purpose the most frequently used measure is Cronbach’s alpha.

We also considered to perform a Principal Components Analysis, but this analysis would not make much sense in previously validated scales and we also found strong criticism to the uselfulness of PCA. Field (2009) states that while factor analysis derives a mathematical model from which factors are estimated, PCA merely decomposes the original data into a set of linear variates. Cliff (1987, p. 349), cited in Field (2009), says that proponents of factor analysis "insist that components analysis is at best a common factor analysis with some error added and at worst an unrecognizable hodgepodge of things from which nothing can be determined".

Thus, we chose to assess the reliability of our scale, through Cronbach's alpha. The most cited accepted level of reliability is 0.70, following Nunnally (1978). Though, there is no consensus on this subject. Next we present a table displaying the levels of reliability recommended by several scholars.

Table 10 – Recommended levels of reliability

Scholar(s)	Application and interpretation field	Recommended level
Davis (1964, p. 24)	Prediction for an individual Prediction for a group of 25-50 people Prediction for a group of more than 50 people	Higher than 0.75 0.50 Lower than 0.50
Kaplan and Saccuzzo (1982, p. 106)	Fundamental research Applied research	0.70 – 0.80 0.95
Murphy and Davidshofer (1988, p. 89)	Unacceptable level Low level Moderate to high level High level	Lower than 0.60 0.70 0.80 – 0.90 0.90
Nunnally (1967, p. 226)	Exploratory research Fundamental research Applied research	0.50 – 0.60 0.80 0.90 – 0.95
Nunnally (1978, p. 245-246)	Exploratory research Fundamental research Applied research	0.70 0.80 0.90 – 0.95

Source: Peterson (1995, p. 76).

We can use both normal and standardized alpha to assess the reliability of our scale. Since the normal alpha is appropriate when items on a scale are summed to produce a single score for that scale, this is the measure that we use in the present research[31]. Besides, we look at the item-to-total correlation, between each item and the sum of the remaining items, to assess convergent validity (Hair, Black, Babin, Anderson, and Tatham, 2006).[32]

[31] The standardized alpha is useful, though, when items on a scale are standardized before being summed.
[32] Discriminant validity, which is measured through the factor loading of a factor analysis, was not assessed here since we did not conduct a data reduction because the constructs used in the present research were already been subject to such factor analysis in previous works.

For EO, we decided to consider the nine items related to its three dimensions (innovativeness, proactiveness and risk-taking) as a single scale, considering that the three dimensions are closely related and that our study focuses on the overall effect of EO rather than the effects of its components, and thus a composite measure as an average of all the items is more adequate, following Miller (1983), Covin and Slevin (1989), Auger, BarNir, and Gallaugher (2003), and Mostafa, Wheeler, and Jones (2006), among other scholars.

Thus, we calculated Cronbach's alpha for EO, and we obtained a reliability slightly below the recommended level, with a Cronbach's alpha of 0.67. Besides, looking at the value of Cronbach's alpha if item deleted for each item on our scale, we can observe what the value of alpha would be if that item were deleted. If the questionnaire is reliable no item should cause a substantial decrease in alpha and seven of the nine values of *Cronbach's alpha if item deleted* are not higher than 0.67, ranging from 0.60 to 0.66. Only the items 2.1.a and 2.2.f have *Cronbach's alpha if item deleted* higher than 0.67, more precisely, 0.671 and 0.685. Analysing the column labelled *corrected item-total correlation* (that represents the correlations between each item and the total score from our measurement instrument), we should observe if all items correlate with the total. In a reliable scale, these correlations should be high, so we should look for problematic items (with low values, which means that a particular item does not correlate well with the scale overall and, therefore it should be dropped). For our data, six out of nine items have high item-total correlations (ranging from 0.34 to 0.53). Items 2.1.a, 2.2.f and 2.2.h have item-total correlations lower than 0.30, respectively 0.22, 0.17 and 0.29. Therefore, we decided to suppress items 2.1.a and 2.2.f from the scale[33]. Without these items, we obtained the results that we show in the following tables.

Table 11 – Reliability statistics of entrepreneurial orientation modified scale

Reliability Statistics

[33] In a research study that makes use of the same scale as we use here, Naldi, Nordqvist, Sjoberg, and Wiklund (2007) also report problems with these same two items, which also resulted in being dropped from the scale.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,682	,678	7

Note: This table and subsequent ones derive from the analyses performed by the author on the present research study.

Table 12 – Item-total statistics of entrepreneurial orientation modified scale

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q2.1.b	17,8986	16,587	,321	,262	,668
q2.1.c	18,5266	16,037	,438	,279	,635
q2.2.d	17,7971	18,386	,206	,213	,691
q2.2.e	17,8502	15,303	,478	,317	,622
q2.3.g	18,2464	16,041	,426	,352	,638
q2.3.h	18,5314	15,978	,420	,444	,640
q2.3.i	18,3382	15,303	,441	,326	,633

For this modified scale, we obtained a higher reliability than considering all nine items, with a Cronbach's alpha of 0.68. Although slightly lower than the recommended level, it is within the accepted range in management studies. Besides, six out of seven values of *Cronbach's alpha if item deleted* are not higher than 0.68, ranging from 0.62 to 0.67. Only item 2.2.d has a *Cronbach's alpha if item deleted* higher than 0.68, more precisely, 0.69. Relatively to *corrected item-total correlation,* all items have high item-total correlations (ranging from 0.32 to 0.44), except item 2.2.d (which presents a value of 0.21) and therefore our modified EO scale seems reliable. For these reasons, we use this modified scale in our further data analyses.

These Cronbach's alphas are consistent with other studies, for example Miller (1983) reports a Cronbach's alpha of 0.65. In Auger, BarNir, and Gallaugher (2003), the internal reliability of EO (which was operationalized using a multi-item scale adapted from Covin and Slevin, 1989) is 0.64. Other scholars obtain higher reliabilities, above

0.80 (e.g. Jogaratnam and Tse, 2006; Mostafa, Wheeler, and Jones, 2006; Naman and Slevin, 1993).

Because EO contains three dimensions, namely innovativeness, proactiveness and risk-taking, and because we found some researchers who have argued that the construct EO is made up of dimensions that do not always covary (e.g., Lumpkin and Dess, 1996), we also performed a reliability analysis for each of these dimensions separately. The results are presented below.

Table 13 – Reliability statistics of entrepreneurial orientation-innovativeness

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,426	,436	3

Table 14 – Reliability statistics of entrepreneurial orientation-proactiveness

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,528	,537	3

Table 15 - Reliability statistics of entrepreneurial orientation-risk-taking

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,693	,694	3

As we can see, we obtained low reliabilities for EO-innovativeness and EO-proactiveness and an acceptable reliability for EO-risk-taking. Because the value of alpha depends on the number of items on the scale (the top half of the equation for alpha includes the number of items squared) we expected lower values when considering the dimensions separately. Still, the values of EO-innovativeness and EO-proactiveness are very low (0.43 and 0.53). Besides, looking at the value of Cronbach's alpha for each item on our scale, we can observe what the value of alpha would be if that item were deleted. Through this observation we conclude that we should drop item 2.1.a in EO-innovativeness.

For MO, we obtained a high reliability, with a Cronbach's alpha of 0.77. Besides, looking at the value of Cronbach's alpha for each item on our scale, we can observe what the value of alpha would be if that item were deleted. If the questionnaire is reliable no item should cause a substantial decrease in alpha and this is exactly what happens with our scale (all values of *Cronbach's alpha if item deleted* are lower than 0.77, ranging from 0.72 to 0.76). Analysing the column labelled *corrected item-total correlation* we should observe if all items correlate with the total. In a reliable scale, these correlations should be high, so we should look for problematic items, with low values. For our data, all items have high (i.e, higher than 0.30) item-total correlations (ranging from 0.33 to 0.61), and so our scale seems reliable.

Table 16 – Reliability statistics of market orientation scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,766	,769	9

Table 17 – Item-total statistics of market orientation scale

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q1.1	31,22	19,018	,453	,312	,744
q1.2	31,00	19,063	,611	,451	,723
q1.3	31,55	20,181	,339	,252	,761
q1.4	31,53	21,115	,325	,229	,761
q1.5	31,11	20,400	,380	,211	,754

q1.6	31,02	18,703	,579	,423	,725
q1.7	31,61	18,423	,459	,320	,744
q1.8	31,64	19,523	,412	,241	,750
q1.9	31,17	18,970	,500	,302	,736

For LO, we obtained a very high reliability, with a Cronbach's alpha of 0.90. Besides, three of the four values of *Cronbach's alpha if item deleted* are not higher than 0.90, ranging from 0.82 to 0.87. Only the first item (3.1) has a *Cronbach's alpha if item deleted* higher than 0.90, more precisely, of 0.92. Analysing the column labelled *corrected item-total correlation,* all items have high item-total correlations (ranging from 0.64 to 0.91), and therefore our LO scale also seems reliable.

Table 18 – Reliability statistics of learning orientation scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,900	,900	4

Table 19 – Item-total statistics of learning orientation scale

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q3.1	13,41	6,087	,637	,627	,920
q3.2	13,35	5,113	,906	,830	,820
q3.3	13,25	5,558	,786	,747	,867
q3.4	13,22	5,970	,793	,734	,867

For dynamic capabilities, we obtained a high reliability, with a Cronbach's alpha of 0.86. Besides, six out of seven values of *Cronbach's alpha if item deleted* are lower than 0.86 (ranging from 0.83 to 0.85), and one value is equal to 0.86. Analysing the column labelled *corrected item-total correlation*, all items have high item-total correlations (ranging from 0.52 to 0.75), and so our dynamic capabilities scale seems reliable.

Table 20 – Reliability statistics of dynamic capabilities scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,864	,863	7

Table 21 – Item-total statistics of dynamic capabilities scale

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q5.1	12,64	64,169	,621	,506	,846
q5.2	13,02	60,898	,732	,608	,830
q5.3	12,97	60,892	,673	,495	,839
q5.4	12,95	65,446	,573	,416	,852
q5.5	12,77	65,782	,516	,323	,861
q5.6	13,20	59,979	,752	,594	,827
q5.7	13,81	65,857	,574	,422	,852

For firm performance, we also obtained a very high reliability, with a Cronbach's alpha of 0.93. Besides, all values of *Cronbach's alpha if item deleted* are not higher than 0.93, ranging from 0.91 to 0.93. Analysing the column labelled *corrected item-total correlation,* all items have high item-total correlations (ranging from 0.72 to 0.87), and therefore our performance scale also seems reliable.

Table 22 – Reliability statistics of firm performance scale

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,931	,931	7

Table 23 – Item-total statistics of dynamic capabilities scale

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q6.1	20,44	25,607	,815	,717	,917
q6.2	20,25	24,837	,871	,782	,912
q6.3	20,57	26,072	,816	,730	,917
q6.4	20,36	25,396	,805	,795	,919
q6.5	20,51	27,018	,747	,655	,924
q6.6	20,46	27,522	,683	,621	,930
q6.7	20,28	27,164	,722	,686	,926

In summary, the results of our reliability statistics are the following:

Table 24 – Summary of reliability statistics

Scale	Cronbach's alpha
Entrepreneurial orientation (modified)	0.68
Entrepreneurial orientation - innovativeness	0.43
Entrepreneurial orientation - proactiveness	0.53
Entrepreneurial orientation – Risk-taking	0.69
Market orientation	0.77
Learning orientation	0.90
Dynamic capabilities	0.86
Firm performance	0.93

CHAPTER V - THE INTERACTION BETWEEN ENTREPRENEURIAL ORIENTATION AND MARKET ORIENTATION AND ITS EFFECT ON FIRM PERFORMANCE

In this chapter, we replicate a well-known study to a different setting, to examine if the reported conclusions are valid to a particular industry – Knowledge Intensive Business Services - in Portugal. One differentiator aspect of our analysis is the firm performance measure, which includes not only traditional items of sales and profit but also customer value and corporate social responsibility, in order to reflect the several concepts associated with performance. Some scholars have already integrated EO, MO and firm performance, using measures of product performance (Atuahene-Gima and Ko, 2001), and financial performance (Zahra, 2008) as dependent variable. None of the reviewed studies used a firm performance measure that includes both financial and non-financial performance (particularly customer value and corporate social responsibility), as we propose to do here. Likewise none of the reviewed studies that have integrated EO, MO and firm performance was applied to KIBS.

V.1 Summary of the relation between Entrepreneurial Orientation, Market Orientation and firm performance

Several studies argue that EO has a different behaviour in different settings and that its effects on performance vary from one industry to another (e.g., Zahra, 2008), which legitimates the examination of new contexts and new industries, namely KIBS. On the other hand, intuitively we suppose that EO and MO are important SOs that KIBS must possess, due to the specifity of the "consultancy firms". We also try to establish if there are differences between micro, small and medium-sized enterprises, in what concerns the mentioned relationships. This question of firm dimension is much debated, mainly in the innovation management literature, and is not generally included in the studies related to SOs, reason why we decided to explore it in the current context.

Some scholars examine simply the interaction between SOs and firm performance, while others also try to understand the role of mediating variables or contingent effects, namely how internal factors (e.g., organizational structure, competence development, organizational learning and innovation, characteristics of the founder or top management) or external conditions (e.g., competitive or technology intensity, industry maturity, market structure) affect the mentioned relationship. In this study these contingent effects will not be subject to analysis.

One of the reasons why we chose to include EO in our study is the existence of several studies, both in entrepreneurship and strategic management literatures, which conclude that entrepreneurial firms have superior organizational outcomes, such as innovativeness, strategic flexibility and firm performance (Barrett, Balloun, and Weinsten, 2000; Brown, 1996; Covin and Slevin, 1989; Dess and Beard, 1984; Keh, Nguyen, and Ng, 2007; Lee, Lee, and Pennings, 2001; Lee and Peterson, 2000; Lumpkin and Dess, 1996; Lyon, Lumpkin, and Dess, 2000; Miller, 1983, 1988; Naman and Slevin, 1993; Schoollhammer, 1982; Smart and Conant, 1994; Wiklund, 1999; Wiklund and Shepherd, 2005; Zahra, 1991, 1993; Zahra and Covin, 1995; Zahra and Garvis, 2000), namely because these firms are likely to increase new product development, facilitate new business creation, and nurture existing operations (Pinchot, 1985).

It is generally assumed that entrepreneurial firms have an advantage over their competitors because of the detection and seizing of opportunities (Alvarez and Barney, 2007), through the possession of strategic management processes, like planning and environmental scanning (Barringer and Bluedorn, 1999), thence the importance of firms developing capabilities in this area. Therefore, some scholars (e.g., Amit and Zott, 2001; Zahra, 2008) argue that to be entrepreneurial, established organizations have to possess organizational routines and processes that allow them to continually search, recognize, and exploit opportunities and, therefore, successfully change.

However, most empirical studies report a tenuous relationship between EO and performance (as reported in III.2.) and, as Zahra (2008) points out, EO manifests differently in different contexts and the effect of EO on performance varies from one industry type to another. Anyway, research does support the view that EO improves the firm's capability to perceive and recognise market opportunities before their rivals (Zahra and Garvis, 2000).

On the other hand, some scholars conclude that firms which possess strong MOs can understand better its customers' needs (both expressed and latent) and address those needs to create superior customer value, as well as recognize industry trends and competitor moves (Jaworski and Kohli, 1993; Slater and Narver, 1999).

As well as with EO, MO has been linked to intermediate organizational outcomes, such as innovative capacity (Grinstein, 2008; Hurley and Hult, 1998), new product development (Lukas and Ferrell, 2000), and new product performance (Atuahene-Gima, 1995). On the other hand, MO has also been linked to superior financial performance, alone or in the presence of other capabilities (e.g., Day, 1994; Deshpandé and Farley, 1998, 2000; Deshpandé, Farley, and Webster, 2000; Harrison-Walker, 2001; Hult and Ketchen, 2001; Jaworski and Kohli, 1993; Knight and Dalgic, 2000; Kohli and Jaworski, 1990; Kohli, Jaworski, and Kumar, 1993; Lusch and Luczniak, 1987; Narver, Jacobson, and Slater, 1999; Narver and Slater, 1990; Olavarrieta and Friedmann, 2008; Pelham, 2000; Pelham and Wilson, 1996; Shoham, Rose, and Kropp, 2005; Slater and Narver, 1994, 2000).

However, various studies have found no direct relationship between MO and objective measures of performance. For example, Jaworski and Kohli (1993) found no significant link between these constructs when using market share, but found significant results when using a perceptual measure as the dependent variable. This can suggest that a bias can exist in which firms that regard themselves as perceptive relative to customers and competitors may overstate their performance (Noble, Sinha, and Kumar, 2002). Voss and Voss (2000) also came to the conclusion that the association between SO and performance varies depending on the type of performance measure used.

Recent literature has suggested there is an overlap between a firm's MO and its EO (Atuahene-Gima and Ko, 2001; Hult and Ketchen, 2001), and Zahra (2008) proposes that the two mentioned constructs are complementary capabilities, and that the routines that support MO intensify the relationship between EO and financial performance. The underlying argument is that this probably happens because while firms with a high MO are likely to identify opportunities (both expressed and latent needs), firms with a high EO can exploit such opportunities and achieve superior performance.

Some scholars have already integrated EO, MO and firm performance, using measures of product performance (Atuahene-Gima and Ko, 2001), and financial performance (Zahra, 2008) as dependent variable. None of the reviewed studies used a firm performance measure that includes both financial and non-financial performance, as we propose to do here.

The ability to identify and exploit opportunities seems to be a key capability both to entrepreneurial firms and market-oriented firms, so the interaction effect between EO and MO will positively influence performance (Zahra, 2008). Statistically, interaction terms can be represented as additional independent variables by multiplying two independent variables to define potential interaction effects. This effect creates a third independent variable that may give additional information about the dependent variable besides the main effect variables. Therefore, if the interaction term creates a significant increment of the multiple correlation, this interaction term will make a significant effect. So, we intend to verify the following hypotheses:

H1a: KIBS with strong EO will have superior performance than those that have a low orientation.

H1b: KIBS with strong MO will have superior performance than those that have a low orientation.

H2: The interaction effect between MO and EO will positively influence KIBS' performance.

V.2 Method to test the relation between Entrepreneurial Orientation, Market Orientation and firm performance

V.2.1 Sample and measures

To test the relation between EO, MO and firm performance we made use of the data obtained through an online survey which targeted 750 Small and Medium Enterprises in the sector of KIBS in Portugal, as detailed in III.7. Through this online survey, a total of 209 valid responses were received, yielding a quite satisfactory response rate of 27.9%.

The questionnaire was developed partly by using existent measurement scales, which were translated into Portuguese, as detailed in III.8. The questionnaire contained several sections with measures for the dependent variable (firm performance) as well as for the independent variables (namely, MO, EO, LO, and DC). Some questions related to our control variables were also included in the questionnaire.

V.2.2 Analysis

To test the hypotheses, multiple regression analysis was used, with firm performance as the outcome or dependent variable, and MO, EO, and the interaction between MO and EO as predictor or independent variables. In regression analysis, we fit a model to our data which enables us to predict values of the dependent variable from independent variable(s). In other words, we predict an outcome variable from one or several predictor variables. Simply put, in simple regression analysis we can reach an equation like the one below:

$$Y_i = \beta_0 + \beta_1 X_i + \varepsilon_i$$

where Y_i is the outcome variable, β_0 is the intercept of the line, β_1 is the slope or gradient of the line, X_i is the i_{th} participant's score on the predictor variable and ε_i is the residual term, i.e., the difference between the score predicted for participant i and the real score of participant i. β_0 and β_1 are also known as the regression coefficients. The value of β_1 represents the change in the outcome resulting from a unit change in the predictor.

To assess the goodness of fit of the model, we use R^2 and F-ratio. R^2 represents the amount of variance in the outcome explained by our model relative to how much variance a very simple model, like the mean, would explain. As a percentage, R^2 represents the percentage of the variance in the outcome that can be explained by our model (Field, 2009). In simple regression, the square root of R^2 is Pearson's correlation coefficient, which provides us with a good estimate of the overall fit of the regression model, while R^2 provides us with a measure of the substantive size of the relationship. The F-ratio is a measure of how much our model has improved the prediction of the outcome (the mean squares for the model) relative to the level of inaccuracy of the model (the residual mean squares for the model) (Field, 2009), and it tests the hypothesis $H0$: $\beta 1 = \beta 2 = \ldots = 0$. If it is not possible to reject this hypothesis, then we cannot expect the model to have explanatory power. A good model should have a high R^2 and a large F-ratio (at least, greater than one[34]).

Similarly to what happens with simple regression, in multiple regression analysis we fit a linear model to our data. The difference is that in multiple regression there are several predictors, and hence each predictor variable has its own coefficient. In other words, the outcome variable is predicted from a combination of the considered variables multiplied by their respective coefficients, plus a residual term.

Simply put, we can represent multiple regression with an equation like the one below:

$$Y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \ldots + \beta_n X_n + \varepsilon_i$$

where Y_i is the outcome variable, β_0 is the intercept of the line, β_1 is the coefficient of the first predictor (X_1), β_2 is the coefficient of the second predictor (X_2), β_n is the coefficient of the n^{th} predictor (X_n), and ε_i is the residual term, i.e., the difference between the value of Y predicted for participant i and the real value of Y of participant i.

To assess the goodness of fit of the model, we use R^2, which represents the amount of variance in the outcome explained by our model relative to how much variance a very

[34] The exact magnitude of the F-ratio can be assessed using critical values for the corresponding degrees of freedom.

simple model, like the mean, would explain. As a percentage, R^2 represents the percentage of the variance in the outcome that can be explained by our model (Field, 2009). Relative to simple regression, the difference is that the square root of R^2 is not a simple correlation coefficient, but a multiple correlation coefficient (multiple R) which is the correlation between the observed values of Y and the values of Y predicted by the model. As such, large values of the multiple R represent a large correlation between the predicted and the observed values.

In order to select predictors to the model the researcher should base her/his decision in past research and when deciding to add new predictors this should be based on the theoretical importance of the new variables. In our study, all variables have been identified and its importance detailed in the revision of the literature.

The method of predictor selection should also be subject of the researcher's reflexion, because it can have impact on the parameters calculated. Thus, one can choose between hierarchical regression – in which predictors are selected based on past research and it is the researcher who chooses in which order to enter the predictors into the model – forced entry regression – in which all the predictors are entered into the model simultaneously – and stepwise regression – in which predictors are entered into the model based only on mathematical criteria. Stepwise regression is usually indicated only for exploratory model building because these models are derived by computer and only take into account statistical criteria and do not take into consideration past research (Field, 2009).

Once we have produced a model, we should ask if the model fits the observed data well (or, on the contrary, if it is influenced by a small number of cases) and if our model can be generalized to other samples of data. To check if the model fits the observed data well we should look for outliers and influential cases, to observe if the model is biased by these cases. Field (2009) writes that there are several statistics which enable us to detect possible problems related to this, for example, standardized residuals, adjusted predicted values, standardized DFFit (the difference between the adjusted predicted value and the original predicted value), the deleted residual, the Studentized deleted residual, Cook's distance, leverage values, Mahalanobis distance, standardized DFBeta (the difference between a parameter estimated using all cases and the same parameter estimated when one case is excluded), and CVR (covariance ratio).

In order to check if our model can be generalized to other samples of data, we should verify if several assumptions are met, namely variable types, non-zero variance, no perfect multicollinearity, uncorrelation between predictors and "external variables", homocedasticity, independent errors, normally distributed errors, independence of the values of the outcome variable, and linearity (Field, 2009).

Following other researchers who studied the relationship between SOs and performance, we performed a hierarchical regression, since this approach is adequate to analyze multiplicative terms in regression analysis or when analyzing strongly correlated independent variables (Bagozzi, 1984; Cohen, 1978). Therefore in the first steps of the regression, only the control variables were entered; then, the SOs were entered; and finally, the interaction of EO and MO was entered[35]. In our data analyses, we made use of SPSS (Statistical Package for the Social Sciences) 16.0.

V.2.3 Results of the multiple regression analysis of the relation between Entrepreneurial Orientation, Market Orientation and firm performance

Next we present multiple regression analysis with firm performance as the outcome or dependent variable, and MO, EO, and the interaction between MO and EO as predictor or independent variables. In the hierarchical regression, we included in Step 1 only the control variable "firm age", and added in Step 2, the control variable "firm size", in Step 3, the control variable "type of KIBS", in Step 4, the SOs (EO and MO) and finally, in Step 5, the interaction of the SOs.

Because in regression, variables need to be continuous or categorical with only two categories, we had to use dummy variables in the case of firm age, firm size and type of KIBS. Thus, we coded these variables as categorical with only two categories, as detailed next. Firm age consists of two categories: less than 42 months; 42 or more

[35] Some scholars call this statistical analysis as "moderated multiple regression" (see e.g., Barrett, Balloun, and Weinstein, 2000; or Barrett and Weinstein, 1998).

months. Type of KIBS consists of two categories: Technological KIBS; Professional KIBS. As to firm size, it consists of micro enterprises (less than 10 employees), small enterprises (10 to 49 employees), and medium-sized enterprises (50 to 250 employees)[36], where the baseline group or control group, against which all other groups are compared, is micro enterprises.

These control variables are believed to influence the relationship between SOs and firm performance, and most of them have been included in previous research. The main reason for controlling for new firms that were at the stage of "enterprising" was the fact that "young firms may behave differently from incumbents" (Horgos and Koch, 2008, p. 207), namely concerning their EO. According to Global Entrepreneurship Monitor (2009), when a firm is 42 months old, it should have already passed the entrepreneurial stage[37]. According to Lumpkin and Dess (1996), an EO may be especially important for small new entrants that are struggling to develop a management team, to organize resources efficiently, and to develop a strategy, since during start-up, an EO may be the only advantage a young firm has got.

In the next table we present a summary of the variables included in the models of the present chapter.

Table 25 – Summary of variables

Variable	Definition
Firm age	The dummy variable "Firm age" consists of two categories: less than 42 months; 42 or more months.
Small ent.	The dummy variable "Small enterprises" takes the value 1 if firm has 10 to 49 employees and 0 otherwise.
Med. ent.	The dummy variable "Medium enterprises" takes the value 1 if firm has 50 to 250 employees and 0 otherwise.
P_kibs	The dummy variable "Type of KIBS" consists of two categories: Technological KIBS; Professional KIBS.

[36] SMEs were classified according to the SME European definition adopted by the European Commission in its Recommendation of 6 May (2003/361/EC), as mentioned in III.7.
[37] Other studies point out different time references (e.g., Runyan, Droge and Swinney (2008), and Zahra and Neubaum (1998) focus on "new ventures", i.e., companies that have 8 years or less).

EO	Entrepreneurial Orientation (see scale in appendix 1).
MO	Market Orientation (see scale in appendix 1).
Performance	Firm Performance (see scale in appendix 1).

In what concerns EO, we decided to consider this orientation as the mean value of the items of all its dimensions, following the majority of the existing literature. The following table summarizes the results of the hierarchical multiple regression.

Table 26 – Summary of regression results

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Firm age	,328*** (,122)	,225* (,122)	,286** (,123)	,260** (,114)	,269** (,114)
Small ent.		-,398** (,180)	-,437** (,179)	-,174 (,165)	-,150 (,167)
Med. ent.		,093 (,197)	,062 (,195)	,166 (,176)	,173 (,176)
P_kibs			,269** (,118)	,070 (,112)	,071 (,112)
EO				,108 (,079)	,871 (,686)
MO				,666*** (,099)	1,251** (,531)
EO x MO					-,189 (,169)
R^2	,034	,104	,127	,299	,303
Adjusted R^2	,029	,091	,110	,278	,279
F-statistic	7,177***	7,809***	7,281***	14,072***	12,257***
Largest VIF	1,000	2,460	2,472	2,490	117,964
Lowest Tolerance	1,000	,407	,405	,384	,008

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test. The entries in the table are unstandardized coefficients. The numbers in brackets are standard errors.

As we can see, there is high multicollinearity in our data in model 5, the one that includes the interaction term, which means that two or more predictors are strongly correlated in the regression model. This poses some problems, namely untrustworthy *b*-coefficients, limited size of R, and difficulty to assess the importance of each predictor (Field, 2009, p. 224). The first mentioned problem arises because as collinearity increases standard errors of the *b*-coefficients also increase, which means that these *b*s are more variable across samples, so they will less likely represent the population. Second, multicollinearity limits the size of R because when a new predictor is added to the model, the variance it accounts for can be the same variance accounted for by the first variable, i.e., the second variable accounts for very little unique variance. Third, multicollinearity leads to a difficulty in identifying the individual importance of each predictor, because we cannot tell which unique variance each variable accounts for, given that each variable accounts for similar variance in the outcome (Field, 2009).

We can say there is collinearity in our data by observing the collinearity statistics, namely VIF (Variance Inflation Factor) and tolerance statistics. Following the guidelines cited in Field (2009), if the largest VIF is greater than 10 then there is cause of concern (Bowerman and O'Connell, 1990; Myers, 1990) or if the average VIF is substantially greater than 1 then the regression may be biased (Bowerman and O'Connell, 1990). For model 5, there are three out of seven VIF values higher than 10 (the highest is 117.964) and the average VIF is much greater than 1 (more precisely, 34.188). Accordingly to the guidelines cited in Field (2009), a tolerance below 0.1 also indicates a serious problem and a tolerance below 0.2 indicates a potential problem (Menard, 1995). For model 5, there are also three predictors with tolerance lower than 0.1 (the lowest is 0.008). As such, we conclude there is collinearity in this model, and this is probably due to the inclusion of an interaction term, since the predictors become strongly correlated in the regression model.

The existence of multicollinearity can be confirmed by the observation of the next table (collinearity diagnostics table). We only present the collinearity diagnostics for model 5, since this is the only one that poses this problem.

Table 27- Collinearity diagnostics

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions							
				(Constant)	Firm age	Small ent.	Med. ent.	P_kibs	EO	MO	EO_MO
5	1	6,142	1,000	,00	,01	,00	,00	,01	,00	,00	,00
	2	1,028	2,444	,00	,01	,05	,18	,00	,00	,00	,00
	3	,418	3,834	,00	,29	,01	,02	,42	,00	,00	,00
	4	,240	5,055	,00	,51	,00	,01	,41	,00	,00	,00
	5	,125	7,010	,00	,02	,61	,63	,02	,00	,00	,00
	6	,031	14,077	,00	,16	,14	,08	,10	,00	,01	,00
	7	,015	19,912	,01	,00	,17	,07	,04	,01	,01	,01
	8	,000	208,482	,99	,01	,03	,00	,00	,99	,99	,99

a. Dependent Variable: Performance

The collinearity diagnostics table shows us the eigenvalues, condition indexes, and variance proportions. In this table we are looking for large variance proportions on the same small eigenvalues. In other words, the variance proportions for each predictor, which vary between 0 and 1, should be distributed across different dimensions or eigenvalues. Here we can see that for EO, MO and EO*MO, the variance proportions are concentrated on one single dimension (0.99 is concentrated on dimension 8), which reinforces our diagnosis of high collinearity on the model that includes the interaction term.

As such, we searched the statistics literature for a solution to this particular problem and we have found Aiken and West's (1991) book, in which these scholars recommend to first mean center each scale that constitutes an interaction term, and then multiply the relevant mean-centered scales to obtain the interaction term, in order to reduce multicollinearity between the main and interaction terms. We also decided to test another solution to the problem of multicollinearity, an original one, that we will present further on. The next table shows the summary of the regression results, using mean-centered scales.

Table 28 – Summary of regression results (using mean-centered scales)

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5

Firm age	,328*** (,122)	,225* (,122)	,286** (,123)	,260** (,114)	,269** (,114)
Small ent.		-,398** (,180)	-,437** (,179)	-,174 (,165)	-,150 (,167)
Med. ent.		,093 (,197)	,062 (,195)	,166 (,176)	,173 (,176)
P_kibs			,269** (,118)	,070 (,112)	,071 (,112)
EO				,108 (,079)	,131 (,082)
MO				,666*** (,099)	,677*** (,100)
EO x MO					-,189 (,169)
R^2	,034	,104	,127	,299	,303
Adjusted R^2	,029	,091	,110	,278	,279
F-statistic	7,177***	7,809***	7,281***	14,072***	12,257***
Largest VIF	1,000	2,460	2,472	2,606	2,648
Lowest Tolerance	1,000	,407	,405	,384	,378

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test. The entries in the table are unstandardized coefficients. The numbers in brackets are standard errors.

As we can see, multicollinearity is no longer a problem, since Variance Inflation Factors are much lower than 10 and the average VIF is not substantially greater than 1 (in model 5, the average VIF is 1.561, in fact). We come to the same conclusion if we look at the tolerance statistics (none is lower than 0.2).

Therefore, analyzing this model, we can conclude that none of the predictors makes a significant contribution to explain firm performance, except firm age and MO. When $p>0.10$ the coefficient is not statistically significant, so it is not possible to reject $H0$ where $\beta i = 0$.

So, small enterprises (t = -0.903, p > 0.10), medium enterprises (t = 0.979, p > 0.10), type of KIBS (t = 0.634, p > 0.10), EO (t = 1.601, p > 0.10), and EO*MO (t = -1.121, p > 0.10) are all nonsignificant predictors of firm performance.

Taking these results into consideration, we can conclude that this model cannot significantly predict firm performance. Because we suspect of problems with the EO scale, and in factor analysis we have arrived to the conclusion that this scale has a low Cronbach's alpha in two of its three dimensions, we decided to rerun the regression analysis considering only the dimension that exhibits a higher Cronbach's alpha (i.e., EO-risk-taking) to check if the results are better. This way, we perform multiple regression analysis with firm performance as the outcome or dependent variable, and MO, EO-risk-taking, and EO-risk-taking*MO as independent variables. Once again, a hierarchical regression was chosen, in the same terms that we did before.

Table 29 – Summary of regression results (considering, for EO, only its dimension risk-taking and using mean-centered scales)

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Firm age	,328*** (,122)	,225* (,122)	,286** (,123)	,227** (,114)	,211* (,114)
Small ent.		-,398** (,180)	-,437** (,179)	-,192 (,166)	-,219 (,167)
Med. ent.		,093 (,197)	,062 (,195)	,162 (,177)	,163 (,177)
P_kibs			,269** (,118)	,048 (,113)	,059 (,113)
EOrisk				,004 (,057)	-,005 (,058)
MO				,678*** (,100)	,628*** (,108)
EOrisk x MO					,137 (,109)
R^2	,034	,104	,127	,292	,298
Adjusted R^2	,029	,091	,110	,271	,273
F-statistic	7,177***	7,809***	7,281***	13,640***	11,951***
Largest VIF	1,000	2,460	2,472	2,591	2,636
Lowest Tolerance	1,000	,407	,405	,386	,379

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test. The entries in the table are unstandardized coefficients. The numbers in brackets are standard errors.

For this model, once again, none of the predictors makes a significant contribution to explain firm performance, except firm age and MO.

Therefore, we decided to conduct a new multiple regression analysis with firm performance as the outcome or dependent variable, MO, other dimension of EO (EO-innovativeness), and EO-innovativeness*MO as independent variables. Once again, a hierarchical regression was chosen, in the same terms that we did before.

Table 30 – Summary of regression results (considering, for EO, only its dimension innovativeness and using mean-centered scales)

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Firm age	,328*** (,122)	,225* (,122)	,286** (,123)	,255** (,115)	,256** (,116)
Small ent.		-,398** (,180)	-,437** (,179)	-,204 (,165)	-,205 (,168)
Med. ent.		,093 (,197)	,062 (,195)	,147 (,177)	,144 (,181)
P_kibs			,269** (,118)	,046 (,111)	,046 (,112)
EOinnov				,069 (,067)	,069 (,067)
MO				,660*** (,101)	,659*** (,102)
EOinnov x MO					,009 (,126)
R^2	,034	,104	,127	,296	,296
Adjusted R^2	,029	,091	,110	,275	,271
F-statistic	7,177***	7,809***	7,281***	13,891***	11,847***
Largest VIF	1,000	2,460	2,472	2,600	2,665
Lowest Tolerance	1,000	,407	,405	,385	,375

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test. The entries in the table are unstandardized coefficients. The numbers in brackets are standard errors.

The results are similar and none of the predictors makes a significant contribution to explain firm performance, except firm age and MO.

This way, we decided to perform multiple regression analysis with firm performance as the outcome or dependent variable, and MO, EO-proactiveness, and EO-proactiveness*MO as independent variables. A hierarchical regression was chosen, in the same terms that we did before. We have also performed a simple regression with each of the three dimensions of EO considered separately and EO-proactiveness was the only dimension of EO which significantly contributed to explain firm performance. So, we expect better results when considering this dimension compared with the other two.

Table 31 – Summary of regression results (considering, for EO, only its dimension proactiveness and using mean-centered scales)

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Firm age	,328*** (,122)	,225* (,122)	,286** (,123)	,273** (,111)	,290*** (,110)
Small ent.		-,398** (,180)	-,437** (,179)	-,105 (,165)	-,133 (,164)
Med. ent.		,093 (,197)	,062 (,195)	,198 (,174)	,183 (,172)
P_kibs			,269** (,118)	,129 (,113)	,150 (,112)
EOproact				,197*** (,069)	,194*** (,068)
MO				,551*** (,107)	,445*** (,116)
EOproact x MO					-,153** (,069)
R²	,034	,104	,127	,321	,337
Adjusted R²	,029	,091	,110	,300	,314
F-statistic	7,177***	7,809***	7,281***	15,566***	14,321***

Largest VIF	1,000	2,460	2,472	2,680	2,696
Lowest Tolerance	1,000	,407	,405	,373	,371

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test. The entries in the table are unstandardized coefficients. The numbers in brackets are standard errors.

Through this analysis, we can see that some predictors are significant in explaining firm performance. Models 1, 2 and 3 correspond to the base models (control variables only), model 4 corresponds to the main effects model, and model 5 is our contingency model (it includes the contingent relationship between EO-proactiveness and MO).

We can say that the contingency model can be defined as follows:

Firm performance = 3.188 + 0.290 Firm Age*** – 0.133 Small enterprises +
0.183 Medium enterprises + 0.150 P-KIBS +
0.194 EO-proactiveness*** + 0.445 MO*** – 0.153 EO-proactiveness x MO**

Note: Predictors are significant at *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test.

We detail next the explanation of this regression analysis (the output tables of SPSS can be found in appendix 3). By the observation of the correlations table, we conclude that MO has a large positive correlation with firm performance (and so it is likely that this variable will best predict firm performance), followed by EO-proactiveness, and EO-proactiveness*MO. All the correlations mentioned above are significant, at $p < 0.10$, except type of KIBS. There are not substantial correlations ($r > 0.9$) between predictors, which is a first indication of the inexistence of multicollinearity.

The summary of the model enables us to conclude how much of the variability in the outcome is accounted for by the predictors. For the first model R^2 is 0.034, which means that firm age accounts for 3.4% of the variation in firm performance. Firm size accounts for an additional 7.0%, type of KIBS explains an additional 2.3%, EO-proactiveness and MO account for an additional 19.4%, and the interaction term accounts for an additional 1.6%.

The value of the adjusted R^2 should be close to the value of R^2. In all models, the differences are small (ranging from 0.005 to 0.023), and this means that if the models were derived from the population, instead of being derived from a sample, they would account for 0.5% to 2.3% less variance in the outcome.

The change statistics tell us whether the change in R^2 is significant. Model 1 causes R^2 to change from 0 to 0.034. This change in the amount of variance explained causes an F-ratio of 7.177, which is significant with a probability less than 0.10. The same happens with the other models.

The analysis of variance (ANOVA) tells us the values of the F-ratios, which represent the ratio of the improvement in prediction due to fitting the regression model. All the values of F are greater than 1 (more precisely, for model 1, the F-ratio is 7.177, which is significant ($p < 0.10$); for model 2, the F-ratio is 7.809, which is unlikely to have happened by chance ($p < 0.10$); for model 3, the F-ratio is 7.281, which is also unlikely to have happened by chance ($p < 0.10$); for model 4, the F-ratio is 15.566, which is significant ($p < 0.10$); and for model 5, the F-ratio is 14.321, which is also significant at $p < 0.10$). These values tell us that all the models significantly improved our ability to predict the outcome.

The *b*-values tell us about the relationship between firm performance and each predictor. The *b*-values also tell us to what degree each predictor affects the outcome if all other predictors are held constant. If the *t*-test associated with a *b*-value is significant, then the predictor is making a significant contribution to the model. For this model, we can conclude that Firm Age ($t = 2.635$, $p < 0.10$), EO-proactiveness ($t = 2.845$, $p < 0.10$), MO ($t = 3.826$, $p < 0.10$), and EO-proactiveness *MO ($t = -2.231$, $p < 0.10$) are all significant predictors of firm performance.

Therefore, older firms have a higher mean performance than younger firms, being the difference between these two groups of 0.290. This difference seems logical, since it is common knowledge that smaller firms are susceptible to fail in its early years of operation (Runyan, Droge, and Swinney, 2008). The proactiveness dimension of EO also makes a significant contribution to explain firm performance, as well as MO and the interaction between the proactiveness dimension of EO and MO.

An interaction effect exists if the interaction term gives a significant contribution over and above the direct effects of the independent variables (Cohen and Cohen, 1983). As to the interpretation of the interaction term, Gupta and Govindarajan (1984) argue that if the regression coefficient of the cross-product has a negative sign, the positive impact of the major independent variable on the dependent variable is stronger for lower rather than higher values of the second or minor independent variable. Thus, we can say that higher values of MO will reduce the effect of EO on firm performance, as well as higher values of EO will reduce the effect of MO on firm performance. However, because when considered individually, we have positive and significant coefficients relative to both EO and MO on firm performance (and positive correlations between EO and MO, as we can confirm by the observation of the correlation matrix), the total effect of the interaction term is not straightforward.

In general, the coefficients for the individual uncentered variables are the differences in response corresponding to a unit change in the predictor when the other predictors are constant. In this particular case, we mean centered the first order variables and, for this reason, the coefficients for the individual centered variables are the differences in the outcome variable corresponding to a unit change in the predictor when the other predictors are at their centered values.

Therefore, 0.194 is the mean increase in firm performance when EO-proactiveness changes 1 unit and MO remains constant at its mean value (3.91). 0.445 is the mean increase in firm performance when MO changes 1 unit and EO-proactiveness remains constant at its mean value (3.03). As the coefficient of the interaction term is negative, when a firm has a MO above the mean value, the effect of EO on firm performance is reduced. When a firm has a MO below the mean value, the effect of EO on firm performance is augmented. The same effect is present in EO relative to MO, i.e., when a firm has a EO above the mean value, the effect of MO on firm performance is reduced. When a firm has a EO below the mean value, the effect of MO on firm performance is augmented.

As to firm size and type of KIBS, we cannot draw conclusions about them because these differences are not statistically significant.

Next, some collinearity statistics are presented, namely VIF (Variance Inflation Factor) and tolerance statistics, which enable us to conclude whether there is collinearity in our data. Following the guidelines cited in Field (2009), if the largest VIF is greater than 10 then there is cause of concern (Bowerman and O'Connell, 1990; Myers, 1990) or if the average VIF is substantially greater than 1 then the regression may be biased (Bowerman and O'Connell, 1990). For our models, there are no VIF values higher than 10 (the highest is 2.696) and the average VIF isn´t much greater than 1 (in the contingency model it is 1.70). Accordingly to the guidelines cited in Field (2009), a tolerance below 0.1 indicates a serious problem and a tolerance below 0.2 indicates a potential problem (Menard, 1995). There are no predictors with tolerance lower than 0.2 (the lowest is 0.371). As such, we conclude there is not collinearity in this model. We should also observe the collinearity diagnostics table, presented below, to confirm this conclusion.

Table 32 - Collinearity diagnostics (considering, for EO, only its dimension proactiveness and using mean-centered scales)

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions							
				(Constant)	Firm age	Small ent.	Med. ent.	P_kibs	EOproactcen	MOcen	EOproac_MOcent
5	1	3,389	1,000	,01	,02	,01	,01	,02	,00	,00	,01
	2	1,738	1,396	,00	,00	,00	,01	,00	,12	,14	,09
	3	1,026	1,817	,00	,01	,03	,11	,01	,03	,03	,15
	4	,741	2,138	,00	,00	,01	,06	,00	,56	,00	,21
	5	,531	2,527	,00	,04	,01	,00	,08	,09	,41	,46
	6	,371	3,024	,00	,36	,00	,05	,24	,07	,22	,05
	7	,155	4,671	,03	,42	,23	,24	,55	,05	,20	,03
	8	,048	8,372	,96	,16	,71	,52	,09	,08	,00	,00

a. Dependent Variable: Performance

The collinearity diagnostics table shows us the eigenvalues, condition indexes, and variance proportions. Here we are looking for large variance proportions on the same small eigenvalues. In other words, the variance proportions for each predictor, which vary between 0 and 1, should be distributed across different dimensions or eigenvalues. Because this is what happens with our model, we can say with high certainty that there is not high collinearity on our data. The casewise diagnostics should be analyzed to draw conclusions about the extreme cases.

Table 33 - Casewise diagnostics (considering, for EO, only its dimension proactiveness and using mean-centered scales)

Casewise Diagnostics[a]

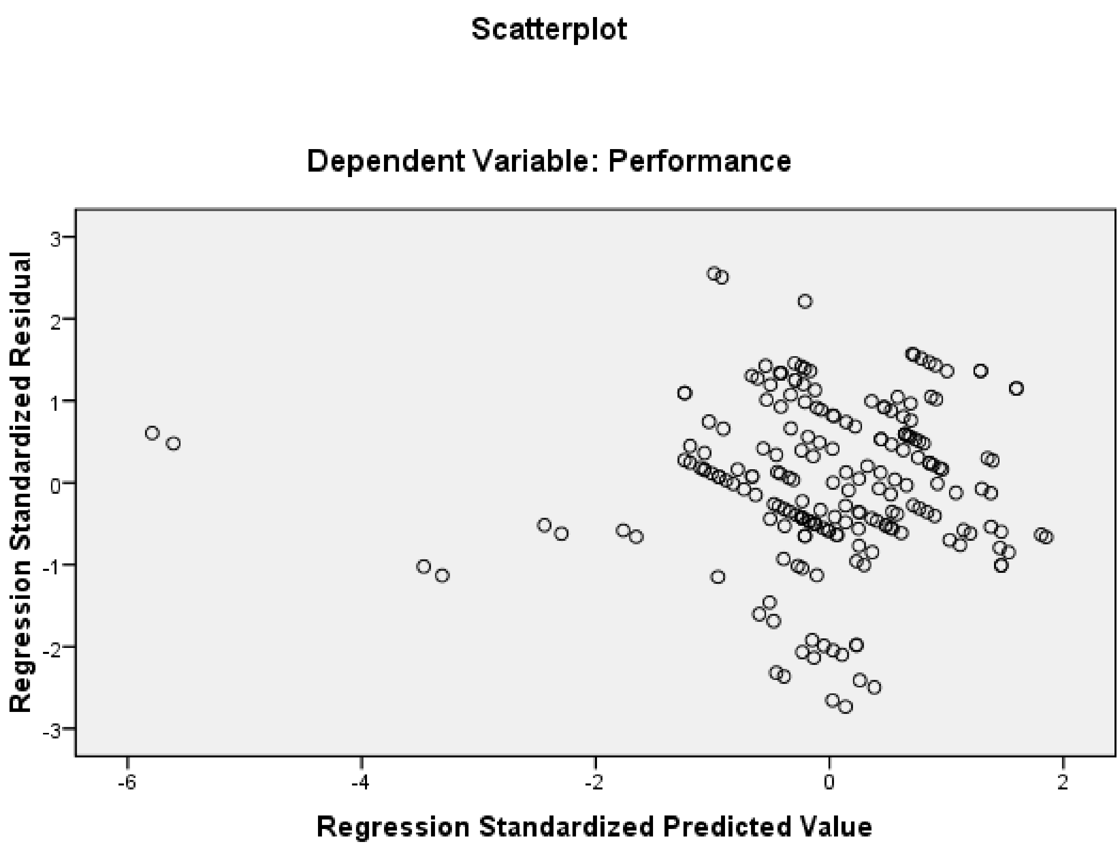
Case Number	Std. Residual	Performance	Predicted Value	Residual
26	2,506	4,71	2,9629	1,75141
59	-2,410	1,86	3,5414	-1,68426
60	-2,654	1,57	3,4265	-1,85505
71	-2,318	1,57	3,1914	-1,62001
92	-2,134	1,86	3,3488	-1,49171
99	2,211	4,86	3,3117	1,54544
104	-2,045	2,00	3,4290	-1,42896
127	2,551	4,71	2,9311	1,78322
165	-2,496	1,86	3,6016	-1,74448
166	-2,732	1,57	3,4810	-1,90959
175	-2,363	1,57	3,2232	-1,65181
198	-2,064	1,86	3,3000	-1,44285
207	-2,098	2,00	3,4665	-1,46645

a. Dependent Variable: Performance

Analyzing the residual statistics, we can draw conclusions about the extreme cases, which can degrade or distort the interpretation of statistical results and because there is evidence that the effects of existing outliers will be increased by the creation of products of variables (Barrett, Balloun, and Weinstein, 2000), this analysis is even more important in our study, since we are dealing with interaction terms. The table labelled "Casewise Diagnostics" shows any cases that have a standardized residual less than -2 or more than 2. Because in an ordinary sample we would expect 95% of the cases to have standardized residuals within -2 and +2, in our sample of 209 cases we would expect about 10 cases with standardized residuals outside of the mentioned limits. As we can see, we have 13 cases (6%) that lie outside of the limits, and so our sample conforms to what we would expect for an accurate model. On the other hand, we have only 1% (above 1% we can expect problems) of the cases with absolute values above 2.5. We have no cases with standardized residuals greater than 3, and only those could be considered outliers, eventually posing some problems. So, we decided not to exclude cases because they are not extreme enough.

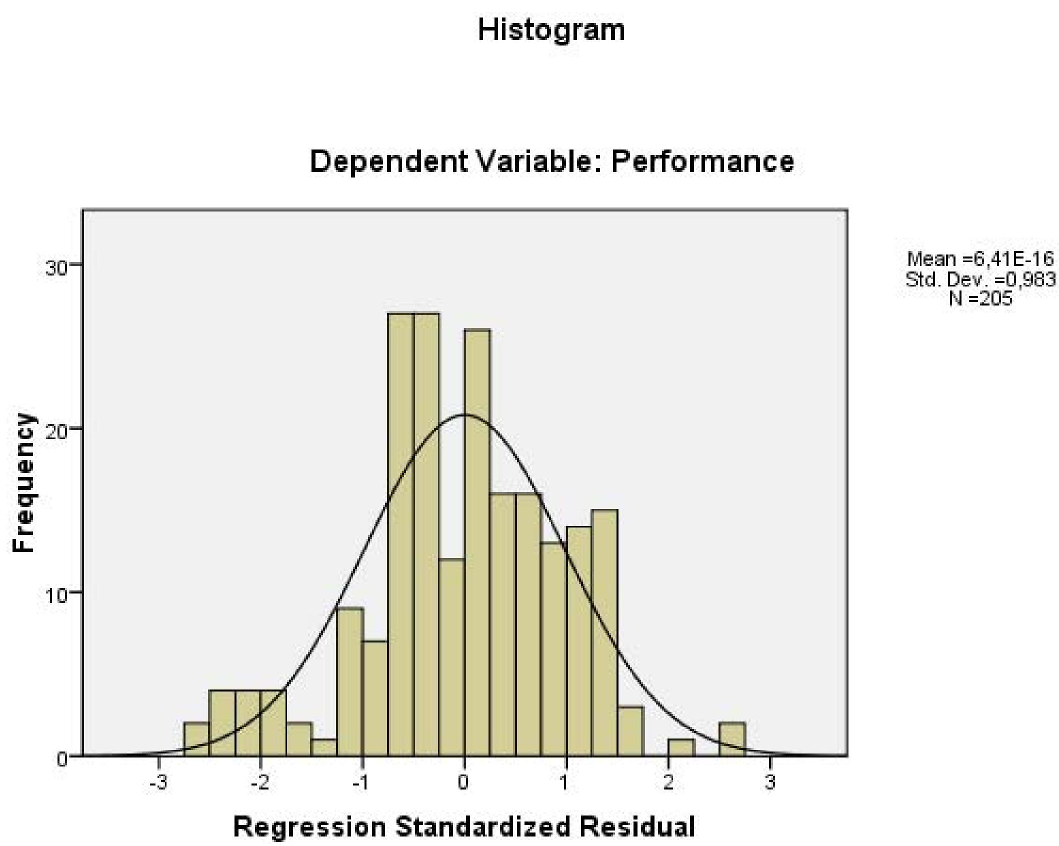
Finally, we should check the assumptions of the model. First, to validate whether the residuals in the model are independent, we should observe the plot of the regression standardized residual against the regression standardized predicted value, which is presented below.

Figure 2- Scatterplot (considering, for EO, only its dimension proactiveness and using mean-centered scales)



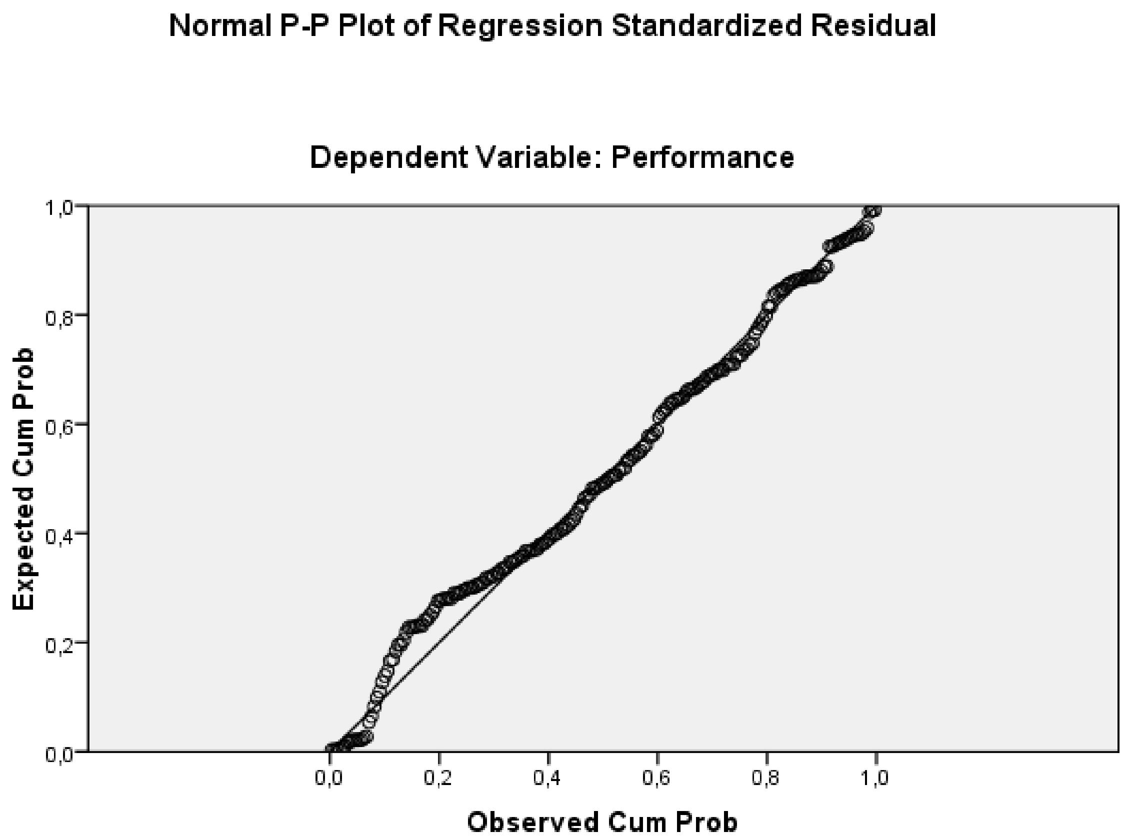
The graph should look like a random array of dots evenly dispersed around zero (Field, 2009), indicating that the assumptions of linearity and homocedasticity have been met. By the observation of the above graph, we can not conclude with high certainty that there is no heterocedasticity. Though, we can observe that only a small number of observations lie outside of the expected values, and therefore they should not influence the whole data. To test the normality of residuals, we should look at the histogram and normal probability plot, presented below.

Figure 3 - Histogram (considering, for EO, only its dimension proactiveness and using mean-centered scales)



If the normality of residuals is met, the histogram should look like a normal distribution, which is the case of our model. This is also shown in the normal probability plot, presented below, where the straight line represents a normal distribution and the points represent the observed residuals.

Figure 4 - Normal probability plot (considering, for EO, only its dimension proactiveness and using mean-centered scales)



In a perfectly normally distributed data set, all points should lie on the straight line. By the observation of the graph, we can conclude that our data are normally distributed.

Because the assumptions of the model seem to have been met, we can assume that this model is accurate for the sample and is generalizable to the population. All the predictors of firm performance are significant, except firm size and type of KIBS. The most important predictors are MO and EO-proactiveness, while the interaction term has a lower effect on firm performance. As to the control variables, only the difference between older and younger firms is significant, and we can say that older firms have a higher mean performance than younger firms.

In addition to the mean-centered variables, following Aiken and West (1991), we propose our own approach to solve the problem of multicollinearity due to the existence of interaction terms. Thus, we decided to code the SOs that are going to be subject of interaction as dummy variables, coding them as 1 (“SO high”) if its value is greater than or equal to its mean value and as 0 if its value is lower than the mean (“SO low”). These dummy variables are considered only in the interaction term, so that the coefficient of the interaction term will only be positive if the two SOs are high (i.e., equal or above its mean value). We present next a summary of the results of this regression.

Table 34 – Summary of regression results (considering, for EO, only its dimension proactiveness and using dummies)

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Firm age	,328*** (,122)	,225* (,122)	,286** (,123)	,273** (,111)	,284** (,110)
Small ent.		-,398** (,180)	-,437** (,179)	-,105 (,165)	-,144 (,165)
Med. ent.		,093 (,197)	,062 (,195)	,198 (,174)	,176 (,173)
P_kibs			,269** (,118)	,129 (,113)	,168 (,114)
EOproact				,197*** (,069)	,251*** (,074)
MO				,551*** (,107)	,625*** (,113)
EOproact x MO					-,271* (,142)
R²	,034	,104	,127	,321	, 333
Adjusted R²	,029	,091	,110	,300	,309
F-statistic	7,177***	7,809***	7,281***	15,566***	14,043***
Largest VIF	1,000	2,460	2,472	2,680	2,721
Lowest Tolerance	1,000	,407	,405	,373	,367

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test. The entries in the table are unstandardized coefficients. The numbers in brackets are standard errors.

Next we present a comparison of the two methods of solving multicollinearity: in non-shadowed cells the results of Aiken and West's (1991) methodology and in shadowed cells the results of the methodology that we propose.

Table 35 - Comparison of model summaries

Model Summary[f]

Model	R Square	Change Statistics		R Square	Change Statistics	
		R Square Change	Sig. F Change		R Square Change	Sig. F Change
1	0,034	0,034	0,008	0,034	0,034	0,008
2	0,104	0,07	0,001	0,104	0,07	0,001
3	0,127	0,023	0,024	0,127	0,023	0,024
4	0,321	0,193	0	0,321	0,193	0
5	0,337	0,017	0,027	0,333	0,012	0,057

Note: Results of Aiken and West's (1991) methodology are displayed in non-shadowed cells and in shadowed cells the results of our own methodology.

As we can see, the R^2 is equal in all models, as well as the significance, except in the last one (which includes the interaction term). However, the difference in this last model is only marginal (0.337 versus 0.333), and the significance remains inaltered.

Table 36 - Comparison of analyses of variance

ANOVA[f]

Model		F	Sig.	F	Sig.
1	Regression	7,177	,008[a]	7,177	,008[a]
	Residual				
	Total				
2	Regression	7,809	,000[b]	7,809	,000[b]
	Residual				
	Total				
3	Regression	7,281	,000[c]	7,281	,000[c]
	Residual				
	Total				
4	Regression	15,566	,000[d]	15,566	,000[d]

	Residual				
	Total				
5	Regression	14,321	,000[e]	14,043	,000[e]
	Residual				
	Total				

Note: Results of Aiken and West's (1991) methodology are displayed in non-shadowed cells and in shadowed cells the results of our own methodology.

Once again, the F value is equal in all models, as well as the significance, except in the last one (which includes the interaction term). Again, the difference in this last model is only marginal (14.321 versus 14.043), and they are both significant.

Table 37 - Comparison of coefficients

Coefficients[a]											
Model	Unstandardized Coefficients		Sig.	Collinearity Statistics			Unstandardized Coefficients		Sig.	Collinearity Statistics	
	B	Std. Error		Tolerance	VIF		B	Std. Error		Tolerance	VIF
5 (Constant)	3,188	,180	,000			(Constant)	-0,032	0,476	0,946		
Firm age	0,290	,110	,009	0,875	1,143	Firm age	0,284	0,110	0,011	0,877	1,140
Small ent.	-0,133	,164	,418	0,371	2,696	Small ent.	-0,144	0,165	0,386	0,367	2,721
Med. ent.	0,183	,172	,289	0,399	2,505	Med. ent.	0,176	0,173	0,311	0,398	2,512
P_kibs	0,150	,112	,183	0,799	1,251	P_kibs	0,168	0,114	0,144	0,780	1,282
EOproact cen	0,194	,068	,005	0,740	1,351	EOproact	0,251	0,074	0,001	0,633	1,580
MOcen	0,445	,116	,000	0,600	1,666	MO	0,625	0,113	0,000	0,635	1,575
EOproact_ MOcent	-0,153	,069	,027	0,795	1,257	EOproact high_ MOhigh	-0,271	0,142	0,057	0,582	1,719

Note: Results of Aiken and West's (1991) methodology are displayed in non-shadowed cells and in shadowed cells the results of our own methodology.

By the observation of the coefficients table, we can also say that the coefficients have only small differences, and the significance remains constant, with firm age, EO-proactiveness, MO and EO-proactiveness x MO being significant at $p < 0.10$. Tolerance and VIF also show there is no collinearity in our models, using both methods.

Table 38 - Comparison of collinearity diagnostics

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Firm age	Small ent.	Med. ent.	P_kibs	EOproact cen	MOcen	EOproact_ MOcent
5	1	3,389	1,000	0,01	0,02	0,01	0,01	0,02	0,00	0,00	0,01
	2	1,738	1,396	0,00	0,00	0,00	0,01	0,00	0,12	0,14	0,09
	3	1,026	1,817	0,00	0,01	0,03	0,11	0,01	0,03	0,03	0,15
	4	0,741	2,138	0,00	0,00	0,01	0,06	0,00	0,56	0,00	0,21
	5	0,531	2,527	0,00	0,04	0,01	0,00	0,08	0,09	0,41	0,46
	6	0,371	3,024	0,00	0,36	0,00	0,05	0,24	0,07	0,22	0,05
	7	0,155	4,671	0,03	0,42	0,23	0,24	0,55	0,05	0,20	0,03
	8	0,048	8,372	0,96	0,16	0,71	0,52	0,09	0,08	0,00	0,00
5	1	5,560	1,000	0,00	0,01	0,00	0,00	0,01	0,00	0,00	0,01
	2	1,066	2,284	0,00	0,00	0,05	0,14	0,01	0,00	0,00	0,03
	3	0,642	2,943	0,00	0,05	0,00	0,05	0,01	0,00	0,00	0,48
	4	0,399	3,732	0,00	0,23	0,00	0,05	0,41	0,00	0,00	0,07
	5	0,213	5,113	0,00	0,62	0,03	0,06	0,38	0,00	0,02	0,00
	6	0,092	7,775	0,00	0,00	0,73	0,62	0,02	0,01	0,08	0,19
	7	0,022	16,054	0,09	0,08	0,10	0,05	0,17	0,16	0,88	0,05
	8	0,006	29,511	0,91	0,00	0,08	0,03	0,01	0,83	0,02	0,18

Note: Results of Aiken and West's (1991) methodology are displayed in non-shadowed cells and in shadowed cells the results of our own methodology.

At last, the collinearity diagnostics table shows that the variance proportions for each predictor, which vary between 0 and 1, are distributed across different dimensions or eigenvalues, using both methods and, therefore, we can say with a high probably there is not strong collinearity on our data.

Thus, we can conclude that both methods (the mean-centered variables, following Aiken and West (1991) and the approach that we propose, using dummy variables in the SOs that are going to be subject of interaction, coding them as 1 if its value is greater or equal than its mean value and as 0 if its value is lower than the mean) are valid to solve the problem of multicollinearity due to the introduction of interaction terms.

We should also note that if we do not use none of these methods to reduce multicollinearity, the coefficients and significances are similar, and thus we can say that the issue of multicollinearity is somewhat artificial, and that it does not result from the data but instead from the introduction of the interaction term which increases much the correlations between the interaction term and the explicative variables that integrate them.

V.3 Discussion of the relation between Entrepreneurial Orientation, Market Orientation and firm performance

The results support the initial research hypothesis of positive relationships between firm age, EO-proactiveness, and MO relative to firm performance, in KIBS. In the case of EO, the dimensions of innovativeness and risk-taking are not significantly related to firm performance, which highlights the importance of examining the EO construct in a disaggregated manner, as this allows to examine the relative weight of each element. This can also shed some light to why preceding empirical research has so diverse results, as generally EO has been examined through aggregated measures.

Firm size and type of KIBS were the only non-significant predictors of firm performance. However, respecting the interaction term the results do not support the hypothesis that the relationships will be stronger for the higher values of SOs. In fact, we can conclude that the positive impact of MO on firm performance is stronger for lower rather than higher values of EO-proactiveness, as well as the positive impact of EO-proactiveness on firm performance is stronger for lower rather than higher values of MO.

Thus, when a firm is oriented toward entrepreneuship this can improve performance, possibly through the attainment of first mover advantage. A proactive firm might enhance capacities that will create advantage over the competitors. On the other hand, when a firm is oriented toward the market, it might also achieve higher performance, probably because it addresses customers needs. However, these relationships will not be stronger for higher values of each of the considered SOs.

V.4 Conclusions relative to the relation between Entrepreneurial Orientation, Market Orientation and firm performance

EO-proactiveness is significantly correlated with firm performance, that is, firms which are proactive towards the competitors and customers have higher firm performance, because these firms try to shape their own future and challenge the present conditions. Therefore, firms should develop an entrepreneurial culture, since it may be an advantage not only in a short-term perspective but also in the long-term representing a unique ability and, thus, difficult to imitate. So, employees should be encouraged to be proactive and should be rewarded when they are creative, both doing new things and old things in new ways and combining differently existing things.

Some studies conclude that the propensity for risk-taking does not have a significant moderate effect on the relationship between MO and performance (Li, Zhao, Tan, and Liu, 2008), and our results confirm this conclusion is valid to KIBS. A possible explanation advanced for this situation is that in emerging economies, capital markets are not fully developed (Li, Zhao, Tan, and Liu, 2008). Additionaly, SMEs that need resources may not be able to raise the capital needed, and thus risk-taking may penalize their performance (Aragón-Sánchez and Sánchez-Marín, 2005). Although the first explanation cannot be fully applied to the context of our present study, the difficulty in raising capital can probably penalize SMEs in KIBS, as some studies demonstrated that access to financial capital positively influences the performance of small businesses (Wiklund and Shepherd, 2005).

As we have seen, only the proactiveness dimension of EO is significantly related to firm performance, while the dimensions of innovativeness and risk-taking do not significantly explain the dependent variable. In fact, there is no consensus in the scientific literature whether EO is a unidimensional construct composed of innovativeness, risk-taking and proactiveness, or a multidimensional construct where the underlying components vary independently of one another.

Lumpkin and Dess (2001), for example, concluded that the dimensions of EO vary independently, according to the environmental and organizational context. Thus, their effects may be contingent on external influences, such as their industry or business environment, or on internal influences, such as organizational structure, culture, strategy-making process, resources and characteristics of the founder or top management, the firm's network capabilities (Walter, Auer, and Ritter, 2006), and access to capital (Wiklund and Shepherd, 2005), among other factors.

In other words, according to Lumpkin and Dess (2001), although entrepreneurial, firms can vary in degree of innovativeness, risk-taking and proactiveness, i.e., firms are not equally entrepreneurial across all dimensions. Others have questioned the appropriate intensity of EO, with Miller and Friesen (1982) warning that if firms increase entrepreneurship beyond a particular threshold that can harm a firm's financial performance.

A study about the EO construct (Coulthard, 2007) identified in past studies variations in importance of each EO dimension. Thus, relative to innovativeness, none of the studies identified it as the most important dimension of EO, and it was frequently associated with technological or product modification rather than involving marketing and organizational changes. This can also explain why this dimension is not significant in explaining performance in KIBS, where organizational and marketing innovations play an important role. In what concerns the proactiveness dimension of EO, the researchers observed that managers in some industries seemed to associate proactive strategies not with first mover advantage but with a reactive approach, though we should bear in mind that reactive strategies could actually have a proactive element. Finally, in what concerns risk, different interpretations of the term risk were made by the respondents, some of them associating planned and calculated risks with positive effects and bold risk-taking with negative outcomes.

Another possible explanation is that the dimensions of EO are hierarchical, i.e., although some of the elements are important, they may not be as important as other elements (Kropp, Lindsay, and Shoham, 2006).

Therefore, it is difficult to measure the several dimensions of EO and this can actually bias the results about EO. What we conclude from our present study is that EO should be disaggregated in its three dimensions, because they actually have different effects on firm performance.

Some empirical research on the relationship between EO and firm performance indicates that contingent (i.e., two-way interactions) rather than direct relationships may explicate more accurately performance (Lin, Peng, and Kao, 2008; Lyon, Lumpkin, and Dess, 2000; Matsuno, Mentzer, and Ozsomer, 2002), because under different contexts, namely different industries or countries, SOs do not necessarily have a positive effect on firm performance (Diamantopoulos and Hart, 1993; Greenley, 1995). Other scholars argue that contingent models are not so relevant as configurational models (e.g., three-way interactions) for studying the relationships between SOs and performance (Dess, Lumpkin, and Covin, 1997; Wiklund and Shepherd, 2005), the latter actually providing additional information over and above main-effects models.

Wiklund and Shepherd (2005) call one's attention to the fact that beyond these configurational effects, which are generally not taken into consideration, the existence of differences in diverse business cultures can also bias the results, since cultural differences in the perception of the EO scale have been pointed out (Knight, 1997).

Some studies conclude that the EO-performance relationship is stronger with large firms and not so strong with small or medium-sized firms (e.g., Barrett, Balloun, and Weinstein, 2000). The underlying argument is that large firms have greater resources and capabilities and a greater opportunity to benefit from entrepreneurial behaviour. On the other hand, Chow (2006) reports opposite results, where smaller and younger firms tend to be associated with a higher level of EO. None of these propositions is true in KIBS, since our results show that firm size does not significantly influence firm performance. In line with our results, Wiklund (1999) also reports that the control variable firm size is not significant in explaining the relationship between EO and performance.

As to MO, our results suggest that market-oriented processes enable KIBS to adjust themselves to changes in the external market. In the view of Hult, Hurley, and Knight

(2004), MO also enhances adaptive and generative learning that enables a firm to remain competitive in dynamic markets. MO can thus support the development of new processes, products, or ideas in the organization, especially when the uncertain environment may force the firm to change its products or services more often than in more stable markets (Hult, Hurley, and Knight, 2004).

It is also argued that MO is a matter of degree, i.e., no firm can completely ignore customers, nor it can completely understand and address future needs of customers (Narver and Slater, 1990) but, on the other hand, many marketing managers are not sure about what types of changes and organizational culture are required in order to have a more market-oriented posture (Deshpandé, Farley, and Webster, 1993).

Some studies conclude that several SOs should to be aligned in order to improve firm performance (e.g., Kropp, Lindsay, and Shoham, 2006). So, we would expect that when EO-proactiveness and MO are combined, there would be a positive effect on firm performance, but this does not happen in our research. Our results show that when a firm is more proactive, its orientation to the market is weaker, so first-movers do not take into such consideration what customers say they want, because these firms are shaping their customers needs, and their own future.

The fact that the positive interaction between proactiveness and MO is not significant can also be due to the existence of other SOs implemented in an organization, beside EO and MO, which would mean that we are analyzing only one part of the strategy implemented whereas reality is far more complex. Besides, we did not consider external influences such as competition or technological intensity, market growth, and others, which could influence the hypothesized relationship. We have to argue, though, that it was truly difficult to include more variables in our survey, given that we wanted to ensure a relatively high response rate.

Some scholars also report a potential trade off between MO and EO, saying that successful firms sometimes disregard new opportunities because they focus too much on their current customers, and invest excessively in technology (Christensen, 1997; Glazer and Weiss, 1993). In fact, only recently have MO researchers distinguished between two types of MO: while responsive MO tries to identify and satisfy expressed customer needs, proactive MO deals with latent customer needs (Narver, Slater, and MacLachlan, 2004).

Slater and Narver (1995) state that market-oriented and entrepreneurial firms share similar values and behavioural patterns, in what respects opportunity recognition and exploitation and development of knowledge, since both types of firms try to satisfy expressed and latent customer needs, and exploit opportunities of growth. This way, a market-oriented culture promotes adaptive learning because it creates behavioural norms that focus on manifest customer needs, while an entrepreneurial culture promotes generative learning since its values and beliefs create behavioural norms that focus on latent customer needs (Baker and Sinkula, 1999b).

Since both proactiveness and MO significantly explain firm performance, when these predictors are considered individually, we have to agree that knowledge about the market is crucial for a firm to be entrepreneurial (Atuahene-Gima and Ko, 2001; Barringer and Bluedorn, 1999; Covin, 1991; Luo, Zhou, and Liu, 2005; Menon and Varadarajan, 1992). EO improves the firm's capability to perceive and recognise market opportunities before their rivals (Zahra and Garvis, 2000), allows to predict trends and discover latent needs, which were not apparent to competitors (Jaworski, Kohli, and Sahay, 2000) and when possessing valuable information, SMEs can better evaluate their options, identify the most profitable opportunities, and control some uncertainty (Keh, Foo, and Lim, 2002). If we have a close look to the mentioned constructs, we can easily conclude that there are some communalities between them, namely being proactive, aggressive and responsive towards their customers and competitors (Grinstein, 2008).

Therefore, when proactiveness increases the firm will be more responsive to threats and opportunities, and to quickly implement the needed strategies to improve performance. Venkatraman (1989) argues that firms can be proactive not only by anticipating new opportunities but also by introducing new products and brands ahead of competitors, strategically eliminating operations that are in the final stages of product life cycle, and participating in emerging markets. This is equally important for firms of different ages, because young firms benefit from being first-movers but established firms also attempt to revitalize their operations and offering through entrepreneurship (Burgelman and Grove, 2007; Green, Covin, and Slevin, 2008; Sathe, 2003). On the other hand, when firms increase the degree of MO, they will enhance the routines that generate dynamic capabilities, which in turn will enhance superior performance (Zahra, 2008).

MO and EO may be seen as complementary, since MO may help managers develop innovations, but the role of EO may be necessary to get things started, because proactiveness can push managers into action and, as such, “EO might be regarded as the spark that ignites the firm into innovative action” (Hult, Hurley, and Knight, 2004, p. 437).

Most of the literature treats MO as an organizational culture, i.e., a system of beliefs that guide the practice of the firm. Thus, a successful market-oriented behaviour should be guided by a market-oriented culture (Deshpandé, Farley, and Webster, 1993; Slater and Narver, 1995) as well as a successful entrepreneurial behaviour should be guided by an entrepreneurial-oriented culture. Thus, a central implication is that to be able to adopt multiple SOs, firms must incorporate multiple systems of beliefs, developing a complex culture (Grinstein, 2008).

Though both EO-proactiveness and MO contribute to strenghten performance, one question that should be investigated further, in the line of the study of Matsuno, Mentzer, and Ozsomer (2002) is the type of learning that occurs when these SOs are both present in an organization; Previous research (Baker and Sinkula, 1999; Miller, 1993; Slater and Narver, 1995) suggests that EO mainly leads to generative learning, which derives from exploration and experimentation, while MO leads to adaptive learning, which proceeds from exploitation of expressed customer needs and existing competitor strengths. This question should be deepened in KIBS, an industry which has grew much in recent years, and where there is a high dynamism, with the inherent specificity of information-intensity and knowledge-intensity, as well as the establishment of interactive supplier-client relations.

In conclusion, our results of the interaction term between EO-proactiveness and MO allow us to conclude that more proactive firms rely less on manifest customer needs. When considered independently both EO-proactiveness and MO have positive effects on performance. Our results also suggest that firm age has a positive effect on firm performance, which can mean that older firms are more likely to use entrepreneurial-and market-oriented behaviours and turn it into better performance. On the other hand, there is not a significant effect of firm size and type of KIBS, which can mean that the mentioned behaviours have the same importance for micro, small, and medium enterprises, as well as for T-KIBS and P-KIBS.

In summary, top managers of KIBS should try to develop a market-oriented culture as well as a proactive one. On the other hand, these firms should avoid taking excessive risks which sometimes are associated with innovation. Therefore, top management should promote an organizational culture that includes both EO and MO.

CHAPTER VI - THE INTERACTION BETWEEN MARKET ORIENTATION AND LEARNING ORIENTATION AND ITS EFFECT ON FIRM PERFORMANCE

We selected some studies that relate the several constructs that we are analyzing and, after reviewing a succession of studies (presented in II.9), we decided to examine the interaction between MO and LO and its effect on firm performance in order to test whether the reported conclusions are valid to Knowledge Intensive Business Services. Intuitively we suppose that MO and LO are important SOs that KIBS must possess, because KIBS are, by definition, information-intensive and knowledge-intensive firms, and maintain interactive supplier-client relations.

Some scholars have already integrated MO, LO and firm performance, using traditional measures of firm performance as dependent variable, but in the present study we bring a different perspective to the problem since we also incorporate social responsibility and customer value in our performance measure, beside the traditional (perceptual) financial performance measures. Besides, none of the reviewed studies that have integrated MO, LO and firm performance was applied to KIBS.

VI.1 Summary of the relation between Market Orientation, Learning Orientation and firm performance

Several studies demonstrate there is a positive relationship between MO and firm performance, but our aim is to test the mentioned relationship using a performance measure which incorporates other facets of performance, besides traditional financial performance measures. In the same line of reasoning, we want to demonstrate that if a firm is learning-oriented, this will affect performance. Baker and Sinkula (1999b) concluded that a firm's LO directly influences organizational performance, by facilitating generative learning that leads to innovation, and indirectly influences organizational performance, by improving the quality of its market-oriented behaviours. In the present chapter, we want to demonstrate this is valid for KIBS.

Although related, LO and MO are distinct constructs (Baker and Sinkula, 1999b). Firms with strong LOs encourage their employees to question how they operationalize their market-oriented behaviours (Day, 1994), the interpretation of information derived from those behaviours, and the way in which they integrate this information with other information (Baker and Sinkula, 1999b).

VI.2 Method to test the relation between Market Orientation, Learning Orientation and firm performance

VI.2.1 Sample and measures

To test the relationship between the mentioned SOs and firm performance we made use of the data obtained through an online survey which targeted 750 SMEs in the sector of Knowledge Intensive Business Services (KIBS) in Portugal. The sample is detailed in III.7. We received a total of 209 valid responses, corresponding to a quite satisfactory response rate of 27.9%.

The questionnaire was developed partly by using existent measurement scales, as detailed in III.8. The questionnaire, which was translated into Portuguese, contained several sections with measures for the dependent variable (firm performance) as well as for the independent variables (namely, MO, EO, LO, and DC), and some questions related to our control variables.

VI.2.2 Analysis

Following previous research, we performed a hierarchical regression, with firm performance as the outcome or dependent variable, and MO, LO, and the interaction between MO and LO as predictor variables, since this approach is adequate to analyze multiplicative terms in regression analysis or when analyzing strongly correlated independent variables, as referenced by Wiklund and Shepherd (2005), following Bagozzi, 1984; Cohen, 1978; Cohen and Cohen, 1983. Therefore in the first steps, only the control variables were entered; then, the MO and LO variables were entered; and finally, the interaction of MO and LO was inserted.

In order to avoid multicollinearity, we followed Aiken and West (1991), which recommend to first mean center each scale that constitutes an interaction term, and then multiply the relevant mean-centered scales to obtain the interaction term, in order to reduce multicollinearity between the main and interaction terms. We also tested our original solution to the problem of multicollinearity[38], as we did in chapter V and the results were, once again, similar to the mean-centered method. Therefore, for reasons of parsimony, we only present the results using one of the methods, and the other results will only be compared in the end of the next section.

VI.2.3 Results of the multiple regression analysis of the relation between Market Orientation, Learning Orientation and firm performance

In the next table we present a summary of the variables included in the models of the present chapter.

Table 39 – Summary of variables

Variable	Definition
Firm age	The dummy variable "Firm age" consists of two categories: less than 42 months; 42 or more months.
Small ent.	The dummy variable "Small enterprises" takes the value 1 if firm has 10 to 49 employees and 0 otherwise.
Med. ent.	The dummy variable "Medium enterprises" takes the value 1 if firm has 50 to 250 employees and 0 otherwise.
P_kibs	The dummy variable "Type of KIBS" consists of two categories: Technological KIBS; Professional KIBS.
MO	Market Orientation (see scale in appendix 1).

[38] We used dummy variables in the strategic orientations that are going to be subject of interaction, coding them as 1 if its value is greater or equal than its mean value and as 0 if its value is lower than the mean.

LO	Learning Orientation (see scale in appendix 1).
Performance	Firm Performance (see scale in appendix 1).

Next we present the results of multiple regression analysis with firm performance as the outcome or dependent variable, and MO, LO, and the interaction between MO and LO as predictor or independent variables. Following previous research, we also performed a hierarchical regression.

Table 40 – Summary of regression results (using mean-centered scales)

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Firm age	,322** (,124)	,223* (,123)	,282** (,125)	,243** (,103)	,244** (,103)
Small ent.		-,397** (,181)	-,435** (,180)	-,407** (,155)	-,409*** (,156)
Med. ent.		,093 (,198)	,062 (,196)	-,053 (,166)	-,053 (,166)
P_kibs			,271** (,119)	,055 (,103)	,061 (,103)
MO				,154 (,123)	,130 (,129)
LO				,518*** (,082)	,493*** (,091)
MO x LO					-,038 (,058)
R^2	,032	,102	,125	,411	,412
Adjusted R^2	,028	,089	,108	,393	,391
F-statistic	6,730**	7,563***	7,091***	22,795***	19,544***
Largest VIF	1,000	2,451	2,463	2,702	2,703
Lowest Tolerance	1,000	,408	,406	,370	,370

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test. The entries in the table are unstandardized coefficients. The numbers in brackets are standard errors.

Models 1, 2 and 3 correspond to the base models (control variables only), model 4 corresponds to the main effects model, and model 5 is our contingency model (it includes the contingent relationship between MO and LO).

We can say that the contingency model can be defined as follows:

Firm performance = 3.490+ 0.244 Firm Age** - 0.409 Small enterprises*** –
- 0.053 Medium enterprises + 0.061 P-KIBS +
0.130 MO + 0.493 LO*** - 0.038 MO x LO

Note: Predictors are significant at *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$, two-tailed test.

We detail next the explanation of this regression analysis (the output tables of SPSS can be found in appendix 4). By the observation of the correlation matrix, which shows the value of Pearson's correlation coefficient between each pair of variables, the one-tailed significance of each correlation, and the number of cases contributing to each correlation, we conclude that LO has a large positive correlation with firm performance (and so it is likely that this variable will best predict firm performance), closely followed by MO and the interaction term MO*LO. All the correlations mentioned above are significant, at $p < 0.10$. The correlation matrix is also useful for getting a first idea of the existence of multicollinearity; if there is no multicollinearity in the data there should be no substantial correlations ($r > 0.9$) between predictors. In fact, there are not high correlations between our predictors, reason why collinearity should not be a cause of concern.

The summary of the model tells us whether the model is successful in predicting firm performance. As we chose a hierarchical method of regression, model 1 refers to the first stage in the hierarchy (the first block, with the control variable "firm age" as predictor), model 2 to the second stage and so on. R is the value of the multiple correlation coefficients between the predictors and the outcome, and R^2 is a measure of how much of the variability in the outcome is accounted for by the predictors. For the first model R^2 is 0.032, which means that firm age accounts for 3.2% of the variation in firm performance; firm size accounts for an additional 7.0%; type of KIBS accounts for an additional 2.3%; MO and LO account for an additional 28.6%; and, finally, the interaction term accounts only for an additional 0.1%.

The adjusted R^2 tells us how well the model generalizes and its value should be close to the value of R^2. In all models, the differences are small (ranging from 0.004 to 0.021), and this means that if the models were derived from the population, instead of being derived from a sample, they would account for 0.4% to 2.1% less variance in the outcome.

The change statistics tell us whether the change in R^2 is significant. Model 1 causes R^2 to change from 0 to 0.032. This change in the amount of variance explained causes an F-ratio of 6.730, which is significant with a probability less than 0.10. The same happens with models 2 to 4. Only in model 5 the change in R^2 is not significant.

The analysis of variance (ANOVA) shows us the values of the F-ratios, which represent the ratio of the improvement in prediction that results from fitting the model, relative to the inaccuracy that still exists in the model (Field, 2009). The F-ratio is calculated by dividing the Mean Square – Regression (the average improvement in prediction by the model) by the Mean Square – Residual (the average difference between the model and the observed data). If the improvement due to fitting the regression model is much greater than the inaccuracy within the model, the value of F will be greater than 1.

For model 1, the F-ratio is 6.730, which is significant ($p < 0.10$). For model 2, the F-ratio is 7.563, which is unlikely to have happened by chance ($p < 0.10$). For model 3, the F-ratio is 7.091, which is also unlikely to have happened by chance ($p < 0.10$). For model 4, the F-ratio is 22.795, which is also significant ($p < 0.10$). Finally, for model 5, the F-ratio is 19.544, which is also significant ($p < 0.10$). These values tell us that all the models significantly improved our ability to predict the outcome.

Analyzing the coefficients table, we can see the parameters of the model, namely the estimates of the *b*-values, which indicate the individual contribution of each predictor to the model, i.e., to what degree each predictor affects the outcome if all other predictors are held constant. All the variables have positive relationships with firm performance, except small enterprises (compared with micro enterprises). Medium enterprises, type of KIBS, MO, and the interaction term do not make significant contributions to the model.

Therefore, older firms have a higher mean performance than younger firms, and small enterprises have a lower mean performance than micro firms. Some of these results seem logical, namely that older firms have better performance, since it is common knowledge that smaller firms are susceptible to fail in its early years of operation (Runyan, Droge, and Swinney, 2008). There is also a significant difference between small enterprises relative to micro enterprises, although we would also expect a similar difference between medium enterprises relative to micro enterprises, and this difference is not statistically significant. We could also expect that T-KIBS have lower performance since they face a more uncertain environment as well as they have to cope with high investments due to a constant need of technological update, but we cannot draw conclusions about them because these differences are not statistically significant. On the other hand, there is a significant difference in firm performance for firms which possess a higher LO. With respect to MO and to the interaction term, they are not statistically significant.

In chapter V, we have concluded that MO significantly impacts firm performance, but that effect ceases to be significant in the model that includes both MO and LO, probably because MO and LO are strongly correlated. In the model presented in chapter V (which includes MO and EO), the coefficients of the variables capture the value of the excluded variables, so they likely capture the effect of LO. When both MO and LO are inserted in the model, the coefficient of MO will only capture the effect of MO on performance. Likewise, the coefficient of LO will only capture the effect of LO on performance. So this can explain why MO is no longer significant.

Each of the beta values has an associated standard error which indicates to what extent these values would vary across different samples, and this is used to determine if the *b*-value differs significantly from zero. The derived *t*-statistic tests whether a *b*-value is significantly different from zero. So, if the *t*-test associated with a *b*-value is significant, then the predictor is making a significant contribution to the model. For this model, we can conclude that medium enterprises, type of KIBS, MO and MO*LO are not significant predictors (p > 0.10) of firm performance. Only firm age, small enterprises, and LO are making a significant contribution (p < 0.10) to this model.

We can also conclude there is not collinearity in our data, looking at the VIF (Variance Inflation Factor) and tolerance. Following the guidelines cited in Field (2009), if the largest VIF is greater than 10 then there is cause of concern (Bowerman and O'Connell, 1990; Myers, 1990) or if the average VIF is substantially greater than 1 then the regression may be biased (Bowerman and O'Connell, 1990). This does not happen with the present model, because none of the VIF is greater than 10 (the highest one is 2.703) and the tolerance statistics do not pose a problem either. Accordingly to the guidelines cited in Field (2009), a tolerance below 0.1 indicates a serious problem and a tolerance below 0.2 indicates a potential problem (Menard, 1995). Our lowest tolerance is 0.370. We can confirm the inexistence of collinearity by the observation of the collinearity diagnostics table, presented below.

Table 41 - Collinearity diagnostics (using mean-centered scales)

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions							
				(Constant)	Firm age	Small ent.	Med. ent.	P_kibs	MOcen	LOcen	MO_LOcen
5	1	3,395	1,000	,01	,02	,01	,01	,02	,00	,00	,00
	2	2,291	1,217	,00	,00	,00	,00	,00	,06	,06	,06
	3	1,004	1,839	,00	,01	,05	,16	,01	,00	,00	,01
	4	,439	2,782	,00	,16	,01	,00	,23	,19	,01	,25
	5	,354	3,098	,00	,22	,00	,06	,14	,44	,02	,19
	6	,309	3,313	,00	,00	,00	,00	,04	,07	,81	,49
	7	,159	4,627	,05	,48	,19	,19	,51	,19	,06	,00
	8	,050	8,215	,94	,12	,74	,57	,04	,05	,03	,00

a. Dependent Variable: Performance

The collinearity diagnostics table shows us the eigenvalues, condition indexes, and variance proportions. Here we are looking for large variance proportions on the same small eigenvalues. In other words, the variance proportions for each predictor, which vary between 0 and 1, should be distributed across different dimensions or eigenvalues. This is exactly what happens with our data. Taking these results into consideration, we can conclude that there is not high multicollinearity in our data. The casewise diagnostics should be analyzed to draw conclusions about the extreme cases.

Table 42 - Casewise diagnostics

Casewise Diagnostics[a]

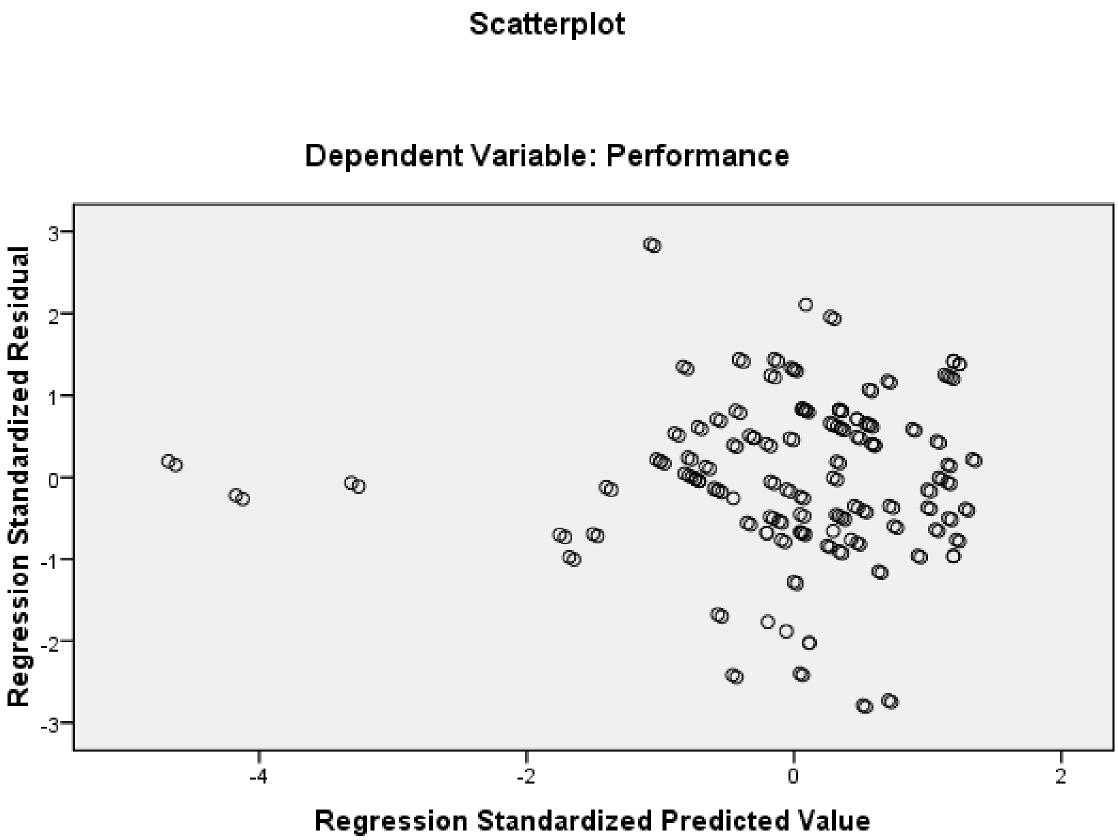
Case Number	Std. Residual	Performance	Predicted Value	Residual
26	2,823	4,71	2,8493	1,86499
59	-2,786	1,86	3,6980	-1,84088
60	-2,417	1,57	3,1681	-1,59665
76	-2,024	2,14	3,4800	-1,33717
92	-2,416	1,86	3,4537	-1,59658
99	2,106	4,86	3,4658	1,39133
104	-2,728	2,00	3,8022	-1,80220
127	2,846	4,71	2,8340	1,88025
165	-2,804	1,86	3,7101	-1,85297
166	-2,441	1,57	3,1844	-1,61296
183	-2,024	2,14	3,4800	-1,33717
198	-2,398	1,86	3,4416	-1,58449
207	-2,746	2,00	3,8143	-1,81429

a. Dependent Variable: Performance

The table labelled "Casewise Diagnostics" shows any cases that have a standardized residual less than -2 or more than 2. Because in an ordinary sample we would expect 95% of the cases to have standardized residuals within -2 and +2, in our sample of 209 cases we would expect about 10 cases with standardized residuals outside of the mentioned limits. As we can see, we have 13 cases (6%) that lie outside of the limits, and so our sample conforms to what we would expect for an accurate model. On the other hand, we have only 2.9% of the cases with absolute values above 2.5. We have no cases with standardized residuals greater than 3, and only those could be considered outliers, eventually posing some problems. So, we decided not to exclude cases because they are not extreme enough.

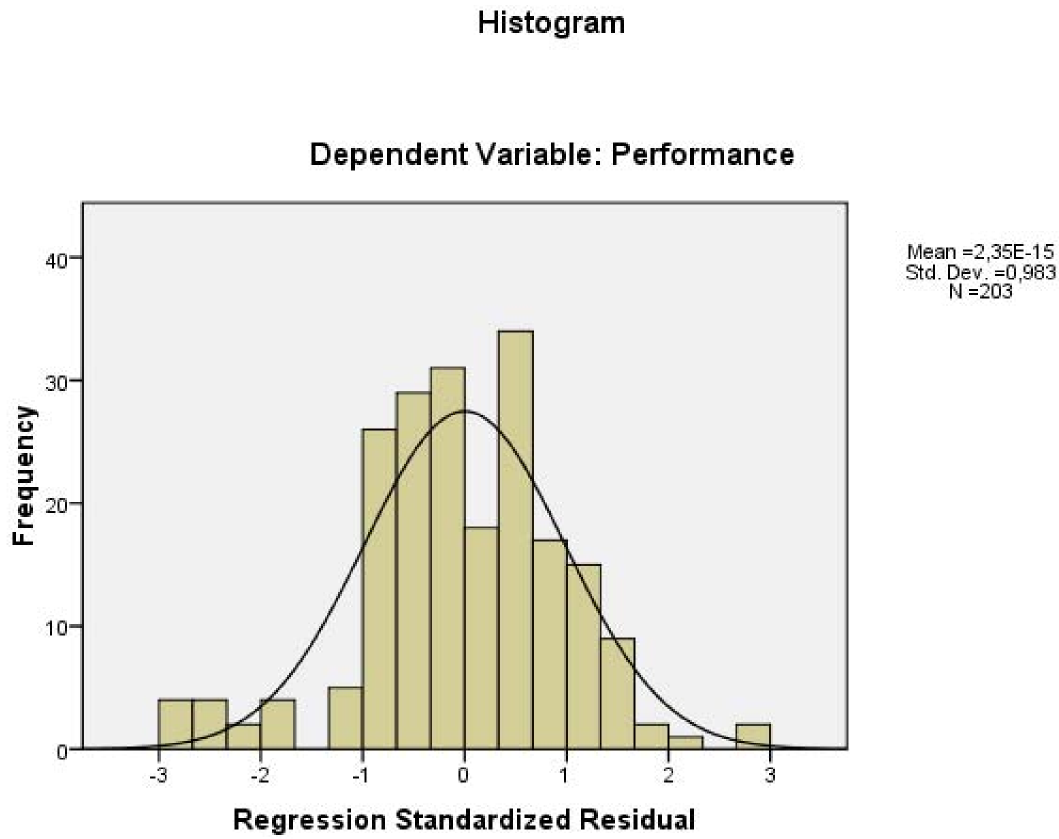
Finally, we should check the assumptions of the model. First, to validate whether the residuals in the model are independent, we should observe the plot of the regression standardized residual against the regression standardized predicted value, which is presented below.

Figure 5 - Scatterplot



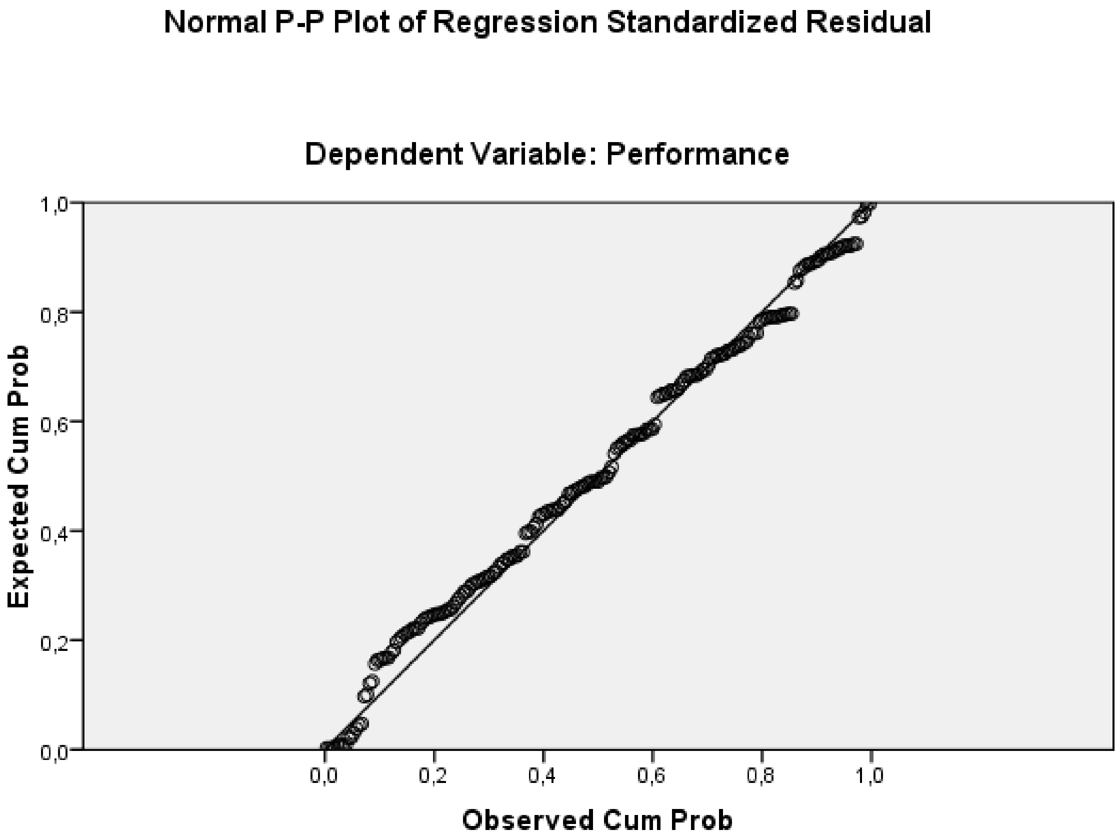
The graph should look like a random array of dots evenly dispersed around zero (Field, 2009), indicating that the assumptions of linearity and homocedasticity have been met. By the observation of the above graph, we can not conclude with high certainty that there is no heterocedasticity. Though, we can observe that only a small number of observations lie outside of the expected values therefore they should not influence the whole data. To test the normality of residuals, we should look at the histogram and normal probability plot, presented below.

Figure 6 - Histogram



If the normality of residuals is met, the histogram should look like a normal distribution, which is the case of our model. This is also shown in the normal probability plot, presented below, where the straight line represents a normal distribution and the points represent the observed residuals.

Figure 7 - Normal probability plot



In a perfectly normally distributed data set, all points should lie on the straight line. By the observation of the graph, we can conclude that our data are normally distributed.

Because the assumptions of the model seem to have been met, we can assume that this model is accurate for the sample and is generalizable to the population. The most important predictor of firm performance is LO, while MO and the interaction term have not statistically significant effects on firm performance. As to the control variables, only the difference between older and younger firms and the difference between small and micro enterprises are significant, and we can say that older firms have a higher mean performance than younger firms, while small enterprises have a lower mean performance than micro enterprises. Medium enterprises and type of KIBS are not significant predictors of firm performance.

We performed another regression analysis to validate if the two methods of solving multicollinearity (the mean-centered variables, following Aiken and West (1991), and our own approach) present similar results. In our approach we coded the SOs that are going to be subject of interaction as dummy variables, coding them as 1 (“SO high”) if its value is greater or equal than its mean value and as 0 if its value is lower than the mean (“SO low”). These dummy variables are considered only in the interaction term, so that the coefficient of the interaction term will only be positive if the two SOs are high (i.e., equal or above its mean value). We present next a summary of the results of this regression.

Table 43 – Summary of regression results (using dummies)

Predictor Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Firm age	,322** (,124)	,223* (,123)	,282** (,125)	,243** (,103)	,240** (,103)
Small ent.		-,397** (,181)	-,435** (,180)	-,407** (,155)	-,416*** (,156)
Med. ent.		,093 (,198)	,062 (,196)	-,053 (,166)	-,061 (,166)
P_kibs			,271** (,119)	,055 (,103)	,067 (,103)
MO				,154 (,123)	,215 (,137)
LO				,518*** (,082)	,528*** (,082)
MO x LO					-,126 (,125)
R²	,032	,102	,125	,411	,414
Adjusted R²	,028	,089	,108	,393	,393
F-statistic	6,730**	7,563***	7,091***	22,795***	19,686***
Largest VIF	1,000	2,451	2,463	2,702	2,711
Lowest Tolerance	1,000	,408	,406	,370	,369

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test. The entries in the table are unstandardized coefficients. The numbers in brackets are standard errors.

Next we present a comparison of the two methods of solving multicollinearity: in non-shadowed cells the results of Aiken and West's (1991) methodology and in shadowed cells the results of the methodology that we propose.

Table 44 - Comparison of model summaries

Model Summary[f]

Model	R Square	Change Statistics		R Square	Change Statistics	
		R Square Change	Sig. F Change		R Square Change	Sig. F Change
1	,032	,032	,010	,032	,032	,010
2	,102	,070	,001	,102	,070	,001
3	,125	,023	,024	,125	,023	,024
4	,411	,286	,000	,411	,286	,000
5	,412	,001	,512	,414	,003	,315

Note: Results of Aiken and West's (1991) methodology are displayed in non-shadowed cells and in shadowed cells the results of our own methodology.

As we can see, the R² is equal in all models, as well as the significance, except in the last one (which includes the interaction term). However, the difference in this last model is only marginal (0.412 versus 0.414), and the significance is similar.

Table 45 - Comparison of analyses of variance

ANOVA[f]

Model		F	Sig.	F	Sig.
1	Regression	6,730	,010[a]	6,730	,010[a]
	Residual				
	Total				
2	Regression	7,563	,000[b]	7,563	,000[b]
	Residual				
	Total				
3	Regression	7,091	,000[c]	7,091	,000[c]
	Residual				
	Total				

4	Regression Residual Total	22,795	,000[d]	22,795	,000[d]
5	Regression Residual Total	19,544	,000[e]	19,686	,000[e]

Note: Results of Aiken and West's (1991) methodology are displayed in non-shadowed cells and in shadowed cells the results of our own methodology.

Once again, the F value is equal in all models, as well as the significance, except in the last one (which includes the interaction term). Again, the difference in this last model is only marginal (19.686 versus 19.544), and they are both significant.

Table 46 - Comparison of coefficients

Coefficients[a]

Model	Unstandardized Coefficients		Sig.	Collinearity Statistics			Unstandardized Coefficients		Sig.	Collinearity Statistics	
	B	Std. Error		Tolerance	VIF		B	Std. Error		Tolerance	VIF
5 (Constant)	3,490	,166	,000			(Constant)	,355	,452	,433		
Firm age	,244	,103	,019	,906	1,104	Firm age	,240	,103	,021	,905	1,105
Small ent.	-,409	,156	,009	,370	2,703	Small ent.	-,416	,156	,008	,369	2,711
Med. ent.	-,053	,166	,751	,386	2,589	Med. ent.	-,061	,166	,715	,385	2,594
P_kibs	,061	,103	,557	,857	1,166	P_kibs	,067	,103	,516	,852	1,174
MOcen	,130	,129	,312	,440	2,275	MO	,215	,137	,119	,384	2,602
LOcen	,493	,091	,000	,424	2,359	LO	,528	,082	,000	,513	1,950
MO_ LOcen	-,038	,058	,512	,516	1,938	LOhigh_ MOhigh	-,126	,125	,315	,569	1,758

Note: Results of Aiken and West's (1991) methodology are displayed in non-shadowed cells and in shadowed cells the results of our own methodology.

By the observation of the coefficients table, we can also say that the coefficients have only small differences, and the significance remains similar, with firm age, small enterprises, and LO being significant at $p < 0.10$. Tolerance and VIF also show there is no collinearity in our models, using both methods.

Table 47 - Comparison of collinearity diagnostics

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions							
				(Constant)	Firm age	Small ent.	Med. ent.	P_kibs	MOcen	LOcen	MO_LOcen
5	1	3,395	1,000	,01	,02	,01	,01	,02	,00	,00	,00
	2	2,291	1,217	,00	,00	,00	,00	,00	,06	,06	,06
	3	1,004	1,839	,00	,01	,05	,16	,01	,00	,00	,01
	4	,439	2,782	,00	,16	,01	,00	,23	,19	,01	,25
	5	,354	3,098	,00	,22	,00	,06	,14	,44	,02	,19
	6	,309	3,313	,00	,00	,00	,00	,04	,07	,81	,49
	7	,159	4,627	,05	,48	,19	,19	,51	,19	,06	,00
	8	,050	8,215	,94	,12	,74	,57	,04	,05	,03	,00
5	1	5,728	1,000	,00	,01	,00	,00	,01	,00	,00	,01
	2	1,029	2,359	,00	,01	,05	,16	,00	,00	,00	,00
	3	,575	3,155	,00	,09	,01	,01	,04	,00	,00	,39
	4	,366	3,954	,00	,21	,00	,05	,43	,00	,00	,19
	5	,200	5,353	,00	,63	,06	,09	,50	,00	,00	,00
	6	,084	8,250	,01	,05	,76	,63	,00	,01	,02	,11
	7	,012	21,498	,30	,01	,00	,00	,00	,02	,77	,10
	8	,005	34,949	,68	,00	,12	,06	,01	,97	,21	,20

Note: Results of Aiken and West's (1991) methodology are displayed in non-shadowed cells and in shadowed cells the results of our own methodology.

At last, the collinearity diagnostics table shows that the variance proportions for each predictor, which vary between 0 and 1, are distributed across different dimensions or eigenvalues, and therefore, we can say with a high probably there is not strong collinearity on our data.

Thus, we can say that both methods (the mean-centered variables, following Aiken and West (1991) and the approach that we propose, using dummy variables in the SOs that are going to be subject of interaction, taking the mean as frontier) are valid to solve the problem of multicollinearity due to the introduction of interaction terms.

Once again, if we do not use none of these methods to reduce multicollinearity, the coefficients and significances are similar, which leads us to the conclusion that the problem of multicollinearity is somewhat artificial, resulting from the introduction of the interaction terms.

VI.3 Discussion of the relation between Market Orientation, Learning Orientation and firm performance

The results support the initial research hypothesis of positive relationships between firm age, and LO relative to firm performance, in KIBS. On the other hand, firm size (medium enterprises), type of KIBS, and MO are not significant predictors of firm performance[39]. We also posited that the strenght of the relationship between MO and firm performance would be heightened as LO increased, but our results show that the interaction effect is not significant. Hence, this hypothesis is not supported. The hypothesized result of firm size did not happen, since small enterprises have a negative effect on performance, when compared with micro enterprises.

VI.4 Conclusion of the study of the relation between Market Orientation, Learning Orientation and firm performance

Since LO significantly explains firm performance but MO does not, our results, in the same line as Baker and Sinkula (1999a), may implie that there is a potential pre-eminence of LO over MO. As such, while it might be advantageous to have market-oriented behaviours, it is crucial to have resources and capabilities, such as LO, that influence the quality of such behaviours and that help achieve competitive advantage. As Calantone, Cavusgil, and Zhao (2002) put it, competitive advantage derives from a

[39] Note that MO ceases being a significant predictor, relative to the model presented in section 5, because as the variables are correlated this lowers the significance of each variable. For example, if we have a regression model that does not include LO, but includes MO, the coefficient of the variable MO will capture the effect of the excluded variables (in this example, LO) that are correlated with the variable MO. When we introduce both MO and LO in the regression model, the coefficient of MO will only capture the direct effect of MO and, similarly the coefficient of LO will only capture the direct effect of LO. In fact, the correlation between MO and LO is relatively high (0.673), whereas the correlation between MO and EOproact is only 0.395, and can partly explain this statistical effect.

full understanding of customer needs, competitors' actions, and technological developments, and this is only possible if an organization is learning-oriented.

On the other hand, some studies (e.g., Hanvanich, Sivakumar, and Hult, 2006) concluded that the relationship between SOs and firm performance is contingent on the level of environmental turbulence. As such, in the context in which KIBS operate, characterized by high uncertainty and rapid change, this can possibly explain the fact that only LO explains firm performance while MO does not.

Our results may also suggest that the main source of innovation in KIBS might be latent needs of customers, seized through LO, instead of expressed needs, mostly identified and addressed through MO. We could not confirm Baker and Sinkula's (1999b) hypothesis that to maximize performance firms must generate learning-oriented values, focus on both manifest and latent customers needs, and create a balance between adaptive and generative learning.

It is generally accepted that knowledge about markets and technology increase the ability to discover and exploit opportunities (Wiklund and Shepherd, 2003), but different SOs might have distinct effects on the seize of opportunities. Slater and Narver (1995) argue that while a strong MO may lead to adaptive and single-loop learning (which is generally reflected in cost and operational efficiency) it will only lead to generative and double-loop learning (that occurs when the organization questions long-held assumptions) when accompanied by a strong LO (Argyris and Schon, 1978; Sinkula, 1994). So, generative learning is more likely to lead to competitive advantage than adaptive learning (Slater and Narver, 1995), as our results also imply.

The same idea is present in Sinkula, Baker, and Noordewier (1997) who state that while MO is reflected by knowledge-producing behaviours, LO is reflected by knowledge-questioning values, and therefore LO is likely to increase the rate of change in a company. Therefore, learning-oriented firms may even question if being market-oriented is beneficial and at times may believe it is more appropriate to lead the market than being market led (Baker and Sinkula, 1999b).

On the other hand, recent studies have highlighted a dark side of MO (e.g., Christensen and Bower, 1996; Voss and Voss, 2000), namely in dynamic markets, where needs are constantly changing. Moreover, some scholars say that customers are inherently myopic, in the sense that they cannot foresee their needs and market trends (Hamel and Prahalad, 1994).

Our results also suggest that firm age has a positive effect on firm performance, which can mean that older firms are more likely to use knowledge and turn it into innovation. Younger firms might not have so efficient mechanisms and routines for internalize knowledge and turn it into innovation activities, as noted by Calantone, Cavusgil, and Zhao (2002). On the other hand, there is not a significant effect of firm size (medium enterprises), and type of KIBS, which can mean that learning has the same importance for micro and medium enterprises, as well as for T-KIBS and P-KIBS.

We also hypothesized that the strenght of the relationship between MO and firm performance would be heightened as LO increases, but our results show that the interaction effect is not significant, maybe due to the fact that MO does not make a significant contribution to explain performance. Our hypothesis of the relationship between firm size and performance is not supported since small enterprises relative to micro enterprises have a negative effect on performance. We should also point out that some scholars (e.g., Ruokonen and Saarenketo, 2009) suggest that SOs are not stable, but rather evolve as time goes by, and we didn't consider this aspect in our study, which could eventually explain why some SOs are not associated with higher performance.

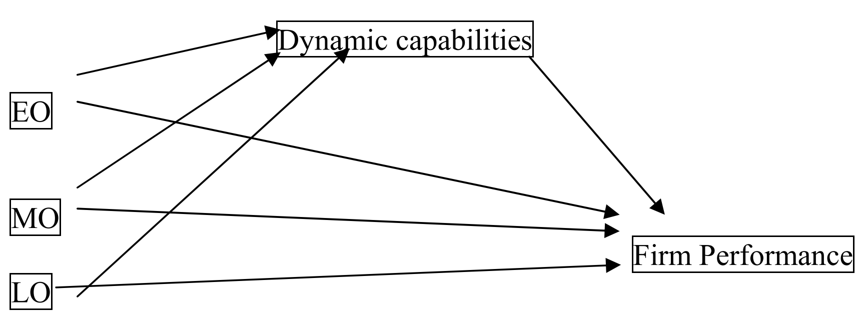
CHAPTER VII - CONCEPTUAL MODEL AND NEW RESEARCH QUESTIONS

Our main contribution to the existing literature respects the integration of SOs and dynamic capabilities to explain firm performance. First of all, we are convinced this is a more realistic approach than previous ones that examined bivariate relationships between each of the SOs separately, or between one of the SOs and firm performance. Besides, we try to join SOs and dynamic capabilities, in order to introduce an evolutionary aspect in our analysis. Finally, we intend to understand the direct and indirect effects on firm performance which, to our best knowledge, is the first research study of this kind, since previous ones focused mainly on direct effects on business performance. One differentiator aspect of our analysis is the firm performance measure, which includes not only traditional items of sales and profit but also customer value and corporate social responsibility, in order to reflect the several concepts associated with performance.

In fact, recent studies have allowed us to better understand the effects of SOs on performance, but because they have not simultaneously examined the impacts of SOs, they do not explain the relative importance of several orientations. Thus, this model simultaneously tests the ability of EO, MO, LO, and DC to directly impact firm performance, and the ability of the mentioned SOs to indirectly influence firm performance.

As such, our conceptual model is the following:

Figure 8 - Conceptual model



Our dependent variable is firm performance and our predictors are EO, MO, LO and DC. Dynamic capabilities are also seen as a mediator between strategic orientations and firm performance. As such, we test both direct, indirect and total effects, as detailed below.

1. Direct effects

EO-Firm performance

H1a: There is a positive relationship between EO and firm performance

MO-Firm performance

H1b: There is a positive relationship between MO and firm performance

LO-Firm performance

H1c: There is a positive relationship between LO and firm performance

Dynamic Capabilities-Firm performance

H1d: There is a positive relationship between dynamic capabilities and firm performance

2. Indirect effects

EO-Firm performance (through DC)

H2a: There is a positive relationship between EO and firm performance, through dynamic capabilities

MO-Firm performance (through DC)

H2b: There is a positive relationship between MO and firm performance, through dynamic capabilities

LO-Firm performance (through DC)

H2c: There is a positive relationship between LO and firm performance, through dynamic capabilities

3. Total effects

EO-Firm performance

H3a: There is a positive relationship between EO and firm performance, considering both direct and indirect effects

MO-Firm performance

H3b: There is a positive relationship between MO and firm performance, considering both direct and indirect effects

LO-Firm performance

H3c: There is a positive relationship between LO and firm performance, considering both direct and indirect effects.

We also controlled for firm age, firm size, and type of KIBS. These control variables are believed to influence the relationship between SOs and firm performance, and most of them have been included in previous research, as mentioned previously. With respect to firm age, there are reasons to believe that "young firms behave differently from incumbents" (Horgos and Koch, 2008, p. 207), namely concerning their EO. Relative to firm size, several studies come to distinct conclusions, so we want to understand if this aspect influences the hypothesized relationships. As to type of KIBS, Miles, Kastrinos, Flanagan, Bilderbeek, den Hertog, Huntink, and Bouman (1995) state there are two main types of business services, where "traditional professional services" (those featuring physical functions) are distinct from "new technology-based services" (those providing information and knowledge functions), therefore we should analyze if in fact different patterns are established in these two groups.

VII.1 Data analysis of the relationships between strategic orientations, dynamic capabilities and firm performance

To understand the relationships between the considered SOs, dynamic capabilities, and firm performance, we began by performing simple regression analyses with firm performance as the outcome or dependent variable, and the several SOs, and dynamic capabilities as independent variables, as well as a regression with dynamic capabilities as dependent variable and the several SOs as independent variables. We also performed simple regression analysis to uncover the possible interactions between EO, MO, LO, and DC to better understand the relationships established between the several strategic orientations.

Then, we performed multiple regression analysis, to comprehend the direct and indirect effects of the several SOs and dynamic capabilities on firm performance.

VII.1.1 Simple regression analysis of the relations between strategic orientations, dynamic capabilities and firm performance

We chose to perform simple regression analysis before multiple regression analysis, because we wanted to understand how each variable by itself predicted the outcome. This is merely an exploratory approach, since we want to get a first idea of how each variable relates to the dependent variable. In fact, *b*-values in multiple regression do not explain the common effect of the variables, but only the effect of each predictor maintaining everything else constant. For this reason, the *b*-values in simple regression can be greater than the ones obtained in multiple regression. Next we present the summary of the simple regression models with firm performance as outcome variable.

Table 48 – Summary of regression models with firm performance as outcome variable

Indep. Variable	Unstandardized Coefficient (constant)/ Std. Error	Unstandardized Coefficient (gradient)/ Std. Error	F	R	R²
EO	3,013*** (,279)	,128 (,090)	2,032	,099	,010
EOinnov	3,116*** (,230)	,096 (,075)	1,652	,089	,008
EOproact	2,230*** (,228)	,355*** (,067)	28,146***	,347	,121
EOrisk	3,584*** (,194)	-,065 (,065)	,974	,069	,005

MO	,435 (,378)	,759*** (,096)	62,792***	,484	,234
LO	,659** (,282)	,620*** (,063)	97,665***	,570	,325
DC	2,763*** (,104)	,285*** (,040)	50,392***	,444	,197

*p<0.10, **p<0.05, ***p<0.01

We only detail the explanation for one of the considered variables (MO), while for the other variables, for reasons of parsimony, only a short explanation is presented. Relative to MO, the summary of the model (see appendix 5) tells us that R has a value of 0.484; because there is only one predictor in this model this value is the simple correlation between MO and firm performance. The value of R^2, which is 0.234, tells us that MO accounts for 23.4% of the variation in firm performance, so there is a large variation in firm performance that cannot be explained by MO (other variables must influence the outcome and those are not included in our present model). The analysis of variance (ANOVA) tells us that the F-ratio for our data is 62.79, which is significant at $p < 0.01$. This result tells us that there is less than a 1% chance that an F-ratio of this magnitude would happen if the null hypotheses were true. Hence, we can say that our regression model overall predicts firm performance significantly well.

By the observation of the coefficients table (see appendix simple regression), which provides details of the model parameters (the beta values) and the significance of these values, we can say that the Y intercept is 0.44, which can be interpreted as meaning that when no MO is developed in the firm, the model predicts that a 0.44 response level was to be reported concerning firm performance. The gradient of the regression line is 0.76, which represents the change in the outcome associated with a unit change in the predictor. In other words, if MO is increased by one unit then our model predicts that firm performance will increase by 0.76. If a predictor has a significant impact on our ability to predict the outcome then this β should be different from zero. We can assess this by looking at the t-test. Because for the MO value the probabilities are 0.000 we can say that the probability of these t-value or larger occurring if the value of β in the population was 0 is less than 0.001. Therefore, β_1 is different from zero and we can conclude that MO makes a significant contribution ($p < 0.01$) to predicting firm performance. As to the value of $\beta 0$, we can conclude that the null hypothesis cannot be rejected, that is, the regression line can intercept the origin of the graph.

As mentioned previously (see chapter IV), in social sciences variables can be composed by several dimensions or factors or latent variables (this happens when during factor analysis, we observe clusters of large correlation coefficients between subsets of variables, meaning that variables are measuring several aspects of the same underlying dimension). Relative to EO, it contains three dimensions, namely innovativeness, proactiveness and risk-taking and some studies conclude these dimensions do not always covary (Kreiser, Marino, and Weaver, 2002; Lumpkin and Dess, 1996). Therefore, we chose to perform a simple regression considering EO as a single measure and also considering the three dimensions separately.

Relative to the aggregated measure of EO, the value of R^2, which is 0.010, tells us that EO accounts only for 1.0% of the variation in firm performance. The F-ratio for our data is 2.03, which is not significant, so this regression model overall does not predict firm performance significantly well.

Taking this into consideration, we analyzed the three dimensions of EO. Observing the results of our simple regression analysis, we can see that only EO-proactiveness makes a significant contribution to predicting firm performance. Both EO-innovativeness and EO-risk-taking do not make significant contributions.

As to LO, the value of R^2, which is 0.325, tells us that LO accounts for 32.5% of the variation in firm performance, and the F-ratio is 97.67, which is significant at $p < 0.10$. Hence, we can say that this regression model overall predicts firm performance significantly well.

The same happens with DC, which has an R^2 of 0.197, so DC account for 19.7% of the variation in firm performance, and the F-ratio is 50.39, which is significant at $p < 0.10$. Hence, we can say that this regression model also predicts firm performance significantly well.

We then added DC to the considered SOs, to verify if these interactions add explanatory power. The results are displayed in the following table.

Table 49 – Summary of interactions between Strategic Orientations and Dynamic Capabilities

Variable	Unstandardized Coefficient (constant)/ Std. Error	Unstandardized Coefficient (SO)/ Std. Error	Unstandardized Coefficient (DC*SO)/ Std. Error	F	R	R²
EOproact, DC*EOproact	2,680*** (,236)	,067 (,088)	,064*** (,013)	26,894***	,457	,209
MO, DC*MO	,854** (,369)	,543*** (,101)	,047*** (,010)	46,655***	,560	,314
LO, DC*LO	,924*** (,283)	,484*** (,071)	,032*** (,009)	58,896***	,607	,368

*p<0.10, **p<0.05, ***p<0.01

When we add Dynamic Capabilities to SOs (namely, EO-proactiveness[40], MO, and LO), we expect to have a higher value of R^2. In other words, in the presence of DC, SOs should account for a higher variation in firm performance. This is precisely what happens with all the variables.

We detail the explanation only for MO, while for the other SOs only the values are presented. Thus, relative to MO, the value of R^2, which was 0.234 considering only MO, rises to 0.314 in the presence of DC, so MO and MO*DC account for 31.4% of the variation in firm performance. The analysis of variance (ANOVA) summary of the model tells us that the F-ratio for our data is 46.66, which is significant at $p < 0.10$. This result tells us that there is less than a 10% chance that an F-ratio of this magnitude would happen if the null hypotheses were true. So, this regression model overall predicts firm performance significantly well.

By the observation of the coefficients table (see appendix 5), we can see that the interaction between DC and MO contributes with a coefficient of 0.05 to firm

[40] In this analysis, we only considered EO (proactiveness) and not the aggregated measure of EO, since we have concluded previously that, as a whole, EO does not make a significant contribution to explain firm performance.

performance beyond the coefficient of 0.54 due to MO so, because we have a positive and significant coefficient, we can say that DC amplifies the effect of MO on firm performance. If a predictor has a significant impact on our ability to predict the outcome then this β should be different from zero. We can assess this by looking at the t-test. Because for MO and MO*DC, the probabilities are 0.001 or lower we can say that the probability of these t-values or larger occurring if the value of β in the population was 0 is less than 0.001. Therefore, β_1 and β_2 are different from zero so we can conclude that both predictors make a significant contribution ($p < 0.01$) to predicting firm performance. β_0 is also significant ($p < 0.10$).

The same happens with the other SOs, namely EO-proactiveness, and LO. In fact, the value of R^2, which was 0.121 considering only EO-proactiveness, rises to 0.209 in the presence of DC, so EO-proactiveness and EO-proactiveness*DC account for 20.9% of the variation in firm performance. Relative to LO, the value of R^2 was 0.325 considering only LO, and it rises to 0.368 in the presence of DC, so LO and LO*DC account for 36.8% of the variation in firm performance.

We also wanted to understand if DC are influenced by SOs, reason why we present the following table where dynamic capabilities are the outcome variable and the several SOs are the predictors.

Table 50 – Summary of regression models with dynamic capabilities as outcome variable

Variable	Unstandardized Coefficient (constant)/ Std. Error	Unstandardized Coefficient (gradient)/ Std. Error	F	R	R²
EO	,178 (,416)	,673*** (,134)	25,160***	,329	,108
EOinnov	,440 (,339)	,596*** (,110)	29,392***	,353	,124
EOproact	,014 (,347)	,667*** (,102)	42,789***	,414	,171
EOrisk	1,606*** (,302)	,216** (,102)	4,505**	,146	,021
MO	-,475 (,648)	,688*** (,164)	17,569***	,280	,078
LO	-,843* (,488)	,694*** (,108)	41,056***	,408	,167

*p<0.10, **p<0.05, ***p<0.01

We only detail the explanation for one of the considered variables (MO), while for the other variables, for reasons of parsimony, only a summarized explanation is given. In the case of MO, the summary of the model (see appendix 5) tells us that R has a value of 0.280; because there is only one predictor in this model this value is the simple correlation between MO and dynamic capabilities. The value of R^2, which is 0.078, tells us that MO accounts for 7.8% of the variation in DC, so there is a large variation in dynamic capabilities that cannot be explained by MO (other variables must influence the outcome and those are not included in our present model). The analysis of variance (ANOVA) summary of the model tells us that the F-ratio for our data is 17.57, which is significant at $p < 0.10$. This result tells us that there is less than a 10% chance that an F-ratio of this magnitude would happen if the null hypotheses were true. Hence, we can say that our regression model overall predicts DC significantly well.

The coefficients table (see appendix 5) provides details of the model parameters (the beta values) and the significance of these values. Thus, we can say that the gradient of the regression line is 0.69, which represents the change in the outcome associated with a unit change in the predictor. In other words, if MO is increased by one unit then our model predicts that DC will increase by 0.69. β_1 is different from zero and we can conclude that MO makes a significant contribution ($p < 0.10$) to predicting DC. As to the value of β_0, we can conclude that the null hypothesis cannot be rejected, that is, the regression line can intercept the origin of the graph.

In the case of EO, the value of R^2 is 0.108, so EO accounts for 10.8% of the variation in DC, and the F-ratio is 25.16, which is significant at $p < 0.10$, so this regression model overall predicts DC significantly well. With respect to the three dimensions of EO, both EO-innovativeness, EO-proactiveness and EO-risk, are significant predictors of DC, although EO-proactiveness accounts for a larger variation in the outcome than the other dimensions.

As to LO, the value of R^2 is 0.167, so LO accounts for a large variation in DC when compared with the other SOs (more precisely 16.7%) and the F-ratio is 41.06, which is significant at $p < 0.10$, so this regression model overall also predicts DC significantly well.

At last, we analyzed the relationship between the several SOs, as presented below.

Table 51 – Summary of regression analysis relative to the relationships between strategic orientations

Variable	Unstandardized Coefficient (constant)/ Std. Error	Unstandardized Coefficient (gradient)/ Std. Error	F	R	R²
MO-EO	3,741*** (,179)	,056 (,058)	0,96	0,068	0,005
MO-LO	1,832*** (,161)	,470*** (,036)	171,74***	0,675	0,456
EO-LO	3,072*** (,263)	-,008 (,058)	0,02	0,010	0,000

*p<0.10, **p<0.05, ***p<0.01

As we can see, only the relationship between MO and LO is significant[41]. The relationships between MO and EO as well as between EO and LO are not significant.

In summary, the results of our simple regression analyses are the following:

Table 52 – Summary of regression analysis with firm performance as outcome variable

Independent Variable	R	R²	F-Ratio	Gradient of regression line	Sig.
EO	0.099	0.010	2.032	0.128	0.156
EOinnov	0.089	0.008	1.65	0.10	0.200
EOproact	0.347	0.121	28.15	0.36	0.000
EOrisk	0.069	0.005	0.974	-0.07	0.325
MO	0.484	0.234	62.79	0.76	0.000
LO	0.570	0.325	97.67	0.62	0.000
DC	0.510	0.260	72.12	0.49	0.000

Table 53 – Summary of interactions between Strategic Orientations and Dynamic Capabilities

Independent Variable	R²	F-Ratio	Sig.	β1	Sig.	β2	Sig.
EOproact, DC*EOproact	0.243	32.70	0.000	-0.09	0.347	0.10	0.000
MO, DC*MO	0.326	49.34	0.000	0.39	0.001	0.08	0.000
LO, DC*LO	0.372	59.95	0.000	0.39	0.000	0.055	0.000

Table 54 – Summary of regression analysis with dynamic capabilities as outcome variable

Independent Variable	R	R²	F-Ratio	Gradient of regression line	Sig.
EO	0.347	0.120	28.32	0.86	0.000
EOinnov	0.353	0.124	29.392	0.596	0.000
EOproact	0.414	0.171	42.789	0.667	0.000
EOrisk	0.146	0.021	4.505	0.216	0.035
MO	0.280	0.078	17.57	0.69	0.000

[41] This confirms the results obtained in chapter VI, where MO ceases to be significant when LO is included in the regression model.

LO	0.408	0.167	41.06	0.69	0.000

Table 55 – Summary of regression analysis relative to the relationships between strategic orientations

Variables	R	R²	F-Ratio	Gradient of regression line	Sig.
MO-EO	0.068	0.005	0.96	0.08	0.328
MO-LO	0.675	0.456	171.74	0.97	0.000
EO-LO	0.010	0.000	0.02	-0.01	0.888

Through this exploratory approach, we can conclude that:

- *H1a* is rejected, i.e., there is not a positive relationship between EO and firm performance
  - There is not a positive relationship between innovativeness and firm performance
  - There is a positive relationship between proactiveness and firm performance
  - There is not a positive relationship between risk-taking and firm performance
- *H1b* is supported, i.e., there is a positive relationship between MO and firm performance
- *H1c* is supported, i.e., there is a positive relationship between LO and firm performance
- *H1d* is supported, i.e., there is a positive relationship between dynamic capabilities and firm performance.

Through this exploratory approach, we also conclude that:

- There is a positive relationship between MO and dynamic capabilities
- There is a positive relationship between EO and dynamic capabilities
  - There is a positive relationship between innovativeness and dynamic capabilities

- There is a positive relationship between proactiveness and dynamic capabilities
- There is a positive relationship between risk-taking and dynamic capabilities

- There is a positive relationship between LO and dynamic capabilities
- The EO-firm performance relationship is moderated by dynamic capabilities such that EO-proactiveness is more positively related to firm performance for firms with high dynamic capabilities than for firms with low dynamic capabilities. Though, EO-innovativeness and EO-risk-taking are not more positively related to firm performance for firms with high dynamic capabilities than for firms with low dynamic capabilities
- The MO-firm performance relationship is moderated by dynamic capabilities such that MO is more positively related to firm performance for firms with high dynamic capabilities than for firms with low dynamic capabilities
- The LO-firm performance relationship is moderated by dynamic capabilities such that LO is more positively related to firm performance for firms with high dynamic capabilities than for firms with low dynamic capabilities
- There is not a positive relationship between MO and EO
- There is a positive relationship between MO and LO
- There is not a positive relationship between EO and LO.

VII.1.2 Multiple regression analysis of the relations between strategic orientations, dynamic capabilities and firm performance

Because simple regression is merely an exploratory analysis, next we perform multiple regression analysis, to uncover the direct effects of the several SOs and dynamic capabilities on firm performance as well as the indirect effects, i.e., the effects of SOs on firm performance, through the dynamic capabilities of the firm. In the next table we present a summary of the variables included in the models of the present chapter.

Table 56 – Summary of variables

Variable	Definition
Firm age	The dummy variable “Firm age” consists of two

	categories: less than 42 months; 42 or more months.
Small ent.	The dummy variable “Small enterprises” takes the value 1 if firm has 10 to 49 employees and 0 otherwise.
Med. ent.	The dummy variable “Medium enterprises” takes the value 1 if firm has 50 to 250 employees and 0 otherwise.
P_kibs	The dummy variable “Type of KIBS” consists of two categories: Technological KIBS; Professional KIBS.
EO	Entrepreneurial Orientation (see scale in appendix 1).
MO	Market Orientation (see scale in appendix 1).
LO	Learning Orientation (see scale in appendix 1).
DC	Dynamic Capabilities (see scale in appendix 1).
Performance	Firm Performance (see scale in appendix 1).

Relative to EO, we decided to use the mean of the three dimensions (innovativeness, proactiveness and risk-taking). In fact, when we performed simple regression only proactiveness made a significant contribution to predict firm performance, so we firstly introduced only this dimension in the multiple regression but the results were similar to introducing the three dimensions, reason why we decided to keep all the dimensions in the analysis.

The procedure to calculate the indirect effects was the following: we made a regression of DC as a function of EO, MO and LO and obtained the unstandardized residuals, which represent the part of the dynamic capabilities not related with the SOs. Next, we made a regression of firm performance as a function of EO, MO, LO and the unstandardized residuals, which represent the total (direct and direct) effects on firm performance. Then, we made a regression of firm performance as a function of EO, MO, LO and DC, which represent the direct effects on firm performance. Finally we calculated the difference between the total effects and the direct effects and, thus, obtained the indirect effects.

Summarizing, we performed the following steps:

- 1st: DC = f (EO, MO, LO); through this regression we obtained the unstandardized residuals (part of the DC which is not related with SOs);

- 2nd: Firm Performance = f (EO, MO, LO, residuals); this regression represents the direct and indirect effects on firm performance, i.e., the total effect;

- 3rd: Firm Performance = f (EO, MO, LO, DC); this regression represents the direct effects on firm performance;

- 4th: The difference between steps 2 and 3 represents the indirect effects on firm performance.

We present below a summary of the regression results, which gives us the direct and total effects on firm performance. Because we want to uncover the possibly distinct effects on different sub-samples, we performed a regression considering the whole sample, and other regressions for the sub-samples of T-KIBS, P-KIBS, micro, small, and medium enterprises. The next table shows the results for the total sample and for the sub-samples of T-KIBS and P-KIBS.

Table 57 – Summary of regression results
(considering the total sample, and the sub-samples of T-KIBS and P-KIBS)

	Total sample n = 203		T-KIBS n = 78		P-KIBS n = 125	
Predictor Variables	**Total effects**	**Direct effects**	**Total effects**	**Direct effects**	**Total effects**	**Direct effects**
Firm age	,303*** (,102)	,303*** (,102)	,621*** (,188)	,546*** (,187)	,091 (,119)	,110 (,119)
Small ent.	-,399*** (,151)	-,409*** (,151)	-,091 (,238)	-,018 (,238)	-,616*** (,188)	-,635*** (,188)
Med. ent.	-,058 (,160)	-,143 (,162)	-,044 (,236)	-,209 (,242)	-,142 (,206)	-,192 (,207)
P_kibs	,100 (,100)	,041 (,101)				
EO	,140** (,071)	,039 (,077)	,427*** (,115)	,282** (,123)	-,047 (,085)	-,119 (,092)

MO	,115 (,120)	,145 (,120)	,190 (,181)	,331* (,183)	,215 (,159)	,201 (,159)
LO	,530*** (,079)	,427*** (,085)	,439*** (,117)	,229* (,131)	,579*** (,108)	,513*** (,112)
DC		,145*** (,042)		,235*** (,070)		,104** (,050)
R²	,456	,456	,531	,531	,496	,496
Adjusted R²	,433	,433	,484	,484	,466	,466
F-statistic	20,306***	20,306***	11,327***	11,327***	16,481***	16,481***
Largest VIF	2,715	2,718	2,820	2,820	2,949	2,988
Lowest Tolerance	,368	,368	,355	,355	,339	,335

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test. The entries in the table are unstandardized coefficients. The numbers in brackets are standard errors.

Next we present a summary of the regression results, which gives us the direct and total effects on firm performance, considering the sub-samples of micro, small and medium enterprises.

Table 58 – Summary of regression results
(considering the sub-samples of micro, small and medium enterprises)

	Micro enterprises n = 24		**Small enterprises n = 122**		**Medium enterprises n = 57**	
Predictor Variables	**Total effects**	**Direct effects**	**Total effects**	**Direct effects**	**Total effects**	**Direct effects**
Firm age	,670* (,359)	,694* (,380)	,177 (,133)	,180 (,133)	,147 (,232)	,008 (,235)
P_kibs	,378 (,288)	,363 (,297)	-,071 (,145)	-,158 (,146)	,207 (,181)	,220 (,181)
EO	,289 (,245)	,241 (,346)	,123 (,092)	,041 (,098)	-,066 (,154)	-,294* (,168)
MO	,773 (,690)	,796 (,700)	,071 (,165)	,109 (,165)	,233 (,192)	,286 (,192)
LO	,260 (,267)	,210 (,369)	,595*** (,112)	,502*** (,117)	,395* (,200)	,154 (,212)
DC		,041		,137**		,241***

		(,211)		(,053)		(,070)
R^2	,609	,609	,427	,427	,409	,409
Adjusted R^2	,471	,471	,397	,397	,338	,338
F-statistic	4,410***	4,410***	14,293***	14,293***	5,757***	5,757***
Largest VIF	4,245	8,114	2,613	2,607	2,061	2,315
Lowest Tolerance	,236	,123	,383	,384	,485	,432

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test. The entries in the table are unstandardized coefficients. The numbers in brackets are standard errors.

Below we can observe a summary of the indirect effects on firm performance, considering the whole sample and the sub-samples of T-KIBS, P-KIBS, micro, small and medium enterprises.

Table 59 – Summary of the indirect effects (considering the total sample, and the sub-samples of T-KIBS, P-KIBS, micro, small and medium enterprises)

Predictor Variables	Total sample n = 203	T-KIBS n = 78	P-KIBS n = 125	Micro enterprises n = 24	Small enterprises n = 122	Medium enterprises n = 57
EO	,140	0.145	n.s.	n.s.	n.s.	positive a)
MO	n.s.	negative a)	n.s.	n.s.	n.s.	n.s.
LO	0.103	0.210	0.066	n.s.	0.093	,395

Notes: n.s. = not significant

a) If the total effect is not significant, but the direct effect is, the indirect effect should be significant but it should have the opposite sign relative to the direct effect.

The next table displays a summary of the effects (direct, indirect, and total effects) of strategic orientations and dynamic capabilities on firm performance, considering the whole sample.

Table 60 – Summary of the effects of strategic orientations on firm performance (considering the whole sample; n= 203)

Predictor	Total	Direct	Indirect

Variables	effects	effects	effects
EO	,140** (,071)	n.s.	,140 a)
MO	n.s.	n.s.	n.s. b)
LO	,530*** (,079)	,427*** (,085)	,103
DC		,145*** (,042)	

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test.

n.s. = not significant

a) If the total effect is significant but the direct effect is not, then the total effect corresponds to the indirect effect.

b) If both total and direct effects are not significant, the indirect effect is also not significant.

The next table displays a summary of the effects (direct, indirect, and total effects) of strategic orientations and dynamic capabilities on firm performance, considering the sub-sample of T-KIBS.

Table 61 – Summary of the effects of strategic orientations on firm performance (considering the sub-sample of T-KIBS; n= 78)

Predictor Variables	Total effects	Direct effects	Indirect effects
EO	,427*** (,115)	,282** (,123)	,145
MO	n.s.	,331* (,183)	negative a)
LO	,439*** (,117)	,229* (,131)	,210
DC		,235*** (,070)	

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test.

a) If the total effect is not significant, but the direct effect is, the indirect effect should be significant but it should have the opposite sign relative to the direct effect.

The following table shows a summary of the effects (direct, indirect, and total effects) of strategic orientations and dynamic capabilities on firm performance, considering the sub-sample of P-KIBS.

Table 62 – Summary of the effects of strategic orientations on firm performance (considering the sub-sample of P-KIBS; n= 125)

Predictor Variables	Total effects	Direct effects	Indirect effects
EO	n.s.	n.s.	n.s. a)
MO	n.s.	n.s.	n.s. a)
LO	,579*** (,108)	,513*** (,112)	,066
DC		,104** (,050)	

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test.

n.s. = not significant

a) If both total and direct effects are not significant, the indirect effect is also not significant.

On the following table we can observe a summary of the effects (direct, indirect, and total effects) of strategic orientations and dynamic capabilities on firm performance, considering the sub-sample of micro enterprises.

Table 63 – Summary of the effects of strategic orientations on firm performance (considering the sub-sample of micro enterprises; n= 24)

Predictor Variables	Total effects	Direct effects	Indirect effects
EO	n.s.	n.s.	n.s. a)
MO	n.s.	n.s.	n.s. a)
LO	n.s.	n.s.	n.s. a)
DC		n.s.	

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test.

n.s. = not significant

a) If both total and direct effects are not significant, the indirect effect is also not significant.

On the next table there is a summary of the effects (direct, indirect, and total effects) of strategic orientations and dynamic capabilities on firm performance, considering the sub-sample of small enterprises.

Table 64 – Summary of the effects of strategic orientations on firm performance (considering the sub-sample of small enterprises; n= 122)

Predictor Variables	Total effects	Direct effects	Indirect effects
EO	n.s.	n.s.	n.s. a)
MO	n.s.	n.s.	n.s. a)
LO	,595*** (,112)	,502*** (,117)	,093
DC		,137** (,053)	

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test.

n.s. = not significant

a) If both total and direct effects are not significant, the indirect effect is also not significant.

The next table displays a summary of the effects (direct, indirect, and total effects) of strategic orientations and dynamic capabilities on firm performance, considering the sub-sample of medium enterprises.

Table 65 – Summary of the effects of strategic orientations on firm performance (considering the sub-sample of medium enterprises; n= 57)

Predictor Variables	Total effects	Direct effects	Indirect effects
EO	n.s.	-,294* (,168)	Positive a)
MO	n.s.	n.s.	n.s. b)
LO	,395* (,200)	n.s.	,395 c)
DC		,241*** (,070)	

Notes: *p < 0.10; **p < 0.05; ***p < 0.01, two-tailed test.

n.s. = not significant

a) If the total effect is not significant, but the direct effect is, the indirect effect should be significant but it should have the opposite sign relative to the direct effect.

b) If both total and direct effects are not significant, the indirect effect is also not significant.

c) If the total effect is significant but the direct effect is not, then the total effect corresponds to the indirect effect.

CHAPTER VIII - DISCUSSION AND CONCLUSIONS

The development of this integrated model allowed us to consider simultaneously several SOs and dynamic capabilities to explain firm performance, which should be a more realistic approach than previous ones that examined bivariate relationships, and makes it also possible to explain the relative importance of several orientations. Moreover, we tried to understand the direct effects of the several SOs and dynamic capabilities on firm performance as well as the indirect effects (through dynamic capabilities) on firm performance which is also a contribute to the existing literature, since the research studies in this scientific area have mainly focused on the direct effects on firm performance.

Considering the **direct effects**, the results support the initial research hypotheses of positive relationships between firm age, LO, and DC relative to firm performance, in KIBS. Firm size has a negative relationship with performance, since small enterprises have lower performance when compared to micro enterprises. The difference of medium enterprises relative to micro enterprises is not significant. When the sample was splited between T-KIBS and P-KIBS, the results were distinct, since they support the research hypotheses of positive relationships between firm age, EO, MO, LO, and DC relative to firm performance, in T-KIBS. On the other hand, only firm size (where small enterprises have a negative impact on performance relative to micro enterprises), LO, and DC explain firm performance in P-KIBS.

In the sub-samples of different firm sizes, the results were also distinct and allowed us to conclude that in micro enterprises, only firm age explains firm performance; in small enterprises, only LO and DC explain performance; and in medium enterprises, EO and DC are the only significant predictors of firm performance, where DC reveal to have a positive relationship and EO a negative relationship with performance.

Therefore, these results can point to the existence of distinct direct relationships between SOs and dynamic capabilities, relative to firm performance, when considering different types of KIBS and firms of different sizes.

When we analyze the **indirect effects**, we conclude that EO and LO significantly improve firm performance through dynamic capabilities. In the sub-sample of T-KIBS, both EO and LO significantly explain firm performance, through dynamic capabilities. However, MO has a negative indirect effect on firm performance. In P-KIBS, only LO has a significant part in explaining performance. Considering the sub-samples of different firm sizes, the results were also distinct and allowed us to conclude that in micro enterprises, none of the SOs significantly explain firm performance, through DC; in small enterprises the only significant predictor is LO; in medium enterprises, both EO and LO significantly influence firm performance through DC.

When we concentrate our attention on the **total effects**, the results support the initial research hypotheses of positive relationships between firm age, EO, and LO relative to firm performance, in KIBS. As to firm size, small enterprises have a negative relationship with firm performance when compared with micro enterprises. In the sub-sample of T-KIBS, there are positive relationships between firm age, EO, and LO, relative to firm performance. On the other hand, when considering the sub-sample of P-KIBS, only firm size (small enterprises relative to micro enterprises), and LO explain firm performance, with LO positively contributing to performance and small enterprises having the opposite effect.

In the sub-samples of different firm sizes, the results were also distinct and allowed us to conclude that in micro enterprises, only firm age explains firm performance; in small enterprises and in medium enterprises, LO is the only significant predictor of firm performance.

In summary, MO only makes a significant positive contribution in explaining firm performance of T-KIBS, through a direct effect, but indirectly (through dynamic capabilities) it negatively impacts performance. On the other hand, LO and DC are significant predictors in most of the sub-samples. As to EO, its importance varies across sub-samples.

We should also make some considerations relative to the conclusions that we obtained in chapters V and VI. The results obtained in chapters V, VI and VII are diverse and this can be partly explained in statistical terms, because when we introduce additional variables in a regression model, some variables cease to be significant. This happens because the regression coefficients do not show the common effects but only the individual effects of each variable, maintaining everything else constant. Thus, since the variables are correlated this lowers the significance of each variable.

For example, if we have a regression model that does not include LO, but includes MO, the coefficient of the variable MO will capture the effect of the excluded variables (in this example, LO) that are correlated with the variable MO. When we introduce both MO and LO in the regression model, the coefficient of MO will only capture the direct effect of MO and, similarly, the coefficient of LO will only capture the direct effect of LO.

VIII.1 Discussion and conclusions relative to the direct effects of strategic orientations and dynamic capabilities on firm performance

When considering the whole sample, there are positive relationships between firm age, LO, and DC relative to firm performance, in KIBS. As to the control variables, small enterprises (relative to micro enterprises) have a negative relation to firm performance. Our results suggest that firm age has a positive effect on firm performance, which can mean that older firms are more likely to use knowledge and dynamic capabilities, and turn them into positive outcomes. One possible explanation for this is the fact that younger firms might not have so efficient mechanisms and routines for internalize knowledge and to develop dynamic capabilities and transform them into higher firm performance. On the other hand, relative to micro enterprises, small enterprises make a less effective utilization of knowledge resources. As we know, SOs are not stable, and thus we can conjecture that in smaller firms, flexible organizational processes and easier coordination mechanisms have behavioural advantages. However, we would also expect a similar difference between medium enterprises relative to micro enterprises, and this difference is not statistically significant.

On the other hand, LO and DC make a significant contribution to explain firm performance, which might be associated with the fact that LO promotes values that, more than enhancing knowledge, question knowledge itself, which seems to be a crucial aspect in Knowledge-Intensive Business Services where the rate of change is very high. As Argyris and Schon (1978) and Sinkula (1994) put it, LO is associated with generative and double-loop learning, i.e., with the process of learning to learn (about markets and technology), which increases the ability of the firm not only to become aware of opportunities but also to question long-held assumptions and, this way, it is more likely to lead to competitive advantage than adaptive learning - reflected in operational efficiency and cost leadership - enhanced by MO (Slater and Narver, 1995).

Baker and Sinkula (1999b) conclude that to maximize performance firms must generate learning-oriented values, focus on both manifest and latent customers needs, and create a balance between adaptive and generative learning. Since only LO and DC explain firm performance while MO does not make a significant contribution, our results may suggest that the main source of innovation in KIBS might be latent needs of customers, instead of expressed needs. In the same line of reasoning, generative learning seems more important in KIBS than adaptive learning. Learning-oriented firms may even question if being market-oriented is beneficial or not (Baker and Sinkula, 1999b), which seems to happen in KIBS.

Since a learning-oriented organization might also easily aggregate and disseminate employees' knowledge throughout the organization, to facilitate the development of a learning organization (Keskin, 2006) and promote a cross-functional integration, through which employees learn and develop new skills and share existing knowledge (Nonaka, 1991), this may also lead to improved outcomes, mainly through generative learning.

In the long run, LO may also play an important role in KIBS since it might generate feelings of trust and commitment with strategic clients, thus enhancing long-term relationships (Vijande, Pérez, González, and Casielles, 2005). In KIBS the establishment of close relationships with selected clients is of crucial importance, given the co-production process of innovation that is typical of these "consultancy firms". In fact, services differ from other industries, especially because they imply an information-intensity and an interactivity of supplier-client relations (Miles, 2001), and this is even more evident in KIBS.

We expected that DC and LO were significant predictors of performance, since this confirms previous findings that DC and learning are closely linked. In fact, DC are developed through learning mechanisms (Zollo and Winter, 2002; Teece and Pisano, 1994) and therefore, the role of DC is crucial because they allow a firm to renew competencies in order to achieve fit with the changing business environment, through the adaptation, integration and reconfiguration of organizational skills, resources, and competencies to meet the characterisitics of the environment (Teece, Pisano, and Shuen, 1997). The presence of DC also implies that a firm has the ability to adapt to and shape the business environment in a proactive manner (Augier and Teece, 2007), that is, the firm has the ability to strategize (Teece, 1998; Zott, 2003).

Therefore, DC have the ability to alter the firm resource base (Eisenhardt and Martin, 2000), relying on new knowledge and guided by learning mechanisms, through repeated practice (Argote, 1999).

Besides the absorptive, adaptive, and innovative components of DC (Wang and Ahmed, 2007), networking also plays a major role since open innovation is increasingly important in nowadays' business context (De Backer, López-Bassols, and Martinez, 2008), where knowledge assets have a fundamental role to look inside-out and outside-in. Because this collaboration is especially important in the service sector with ICT revealing higher levels of open innovation (De Backer, López-Bassols, and Martinez, 2008), it was also expected that this would contribute to the major role DC have in the subsector of KIBS.

When the sample was splited between T-KIBS and P-KIBS, the results were distinct, since there are significant positive relationships between firm age, EO, MO, LO, and DC relative to firm performance, in T-KIBS. On the other hand, only firm size (where small enterprises relative to micro enterprises have a negative impact on performance), LO, and DC explain firm performance in P-KIBS. Hence, technological KIBS benefit from more efficient mechanisms and routines enabled by the age of the firm, as well as they benefit from multiple SOs, which implies that they must incorporate multiple systems of beliefs and develop a complex culture. Beyond profiting from a learning-oriented culture, technological KIBS also benefit from an entrepreneurial- and market-oriented culture, so on T-KIBS the discovery and exploitation of opportunities might be associated with proactive, innovative and risk-taking behaviours, as well as manifest customer needs may be as important as latent customer needs.

In fact, KIBS are defined as services that rely heavily upon professional knowledge, and they either supply products which are primarily sources of information and knowledge to their users or use their knowledge to produce services which are inputs to their clients' own knowledge generating and information processing activities, and have other businesses as their main clients (Miles, Kastrinos, Flanagan, Bilderbeek, den Hertog, Huntink, and Bouman*,* 1995, p. 28). Thus, KIBS are usually identified as purchasers of knowledge, providers of knowledge and transferors of knowledge, which partly explains the reason why LO and dynamic capabilities are the most explanatory variables of firm performance.

The same idea is present on Horgos and Koch (2008), which state that the central features of KIBS are the outstanding significance of knowledge (both tacit and codified) and the resulting innovative activities (knowledge intensity), the orientation of services towards other organizations and the resulting relevance of interactivity, and the importance of spatial proximity between KIBS firms and their providers and clients. Other scholars have also recently claimed that innovative business services imply an intense interaction between service suppliers and clients (Johannisson, 1998; Lundvall, 1998; Strambach, 2002).

Muller and Doloreux (2009) also maintain that although KIBS were initially seen as mere transferors of specialised information to their clients, nowadays KIBS are not only viewed as knowledge suppliers but it is also acknowledged that there is a co-production process which intimately involves their clients. Den Hertog (2000) point to the significance of non-technological factors in innovation, such as new service concepts, client interfaces, and service delivery systems.

Bettencourt, Ostrom, Brown, and Roundtree (2002), state that KIBS cannot simply "inform" their clients about the provided services but, above all, they have to "educate" them. Thus, clients co-create or co-produce the knowledge-based service solution, together with KIBS. This can partly explain why MO does not make a significant contribution in explaining performance, in most of our sub-samples, given that KIBS do not merely have to be aware of market tendencies, as happens in most industries, but they actually work together with their clients in order to co-produce viable and innovative solutions.

The distinct results between P-KIBS and T-KIBS could also be linked to the concepts of "creative destruction" and "creative accumulation"[42] (Schumpeter, 1934, 1942), corresponding to different industry structures. Therefore, the former pattern of innovation occurs in industries which have a high rate of entry of new competitors and, simultaneously, an erosion of the competitive advantage of established firms and, thus, are characterized by an enlarging innovative base. On the other hand, the latter pattern of innovation occurs in concentrated industries which have high barriers to entry with the consequent lower rate of entry of new competitors, which leads to a cumulative pattern of innovation and competitive advantage.

Some studies have demonstrated that these patterns of innovation differ across technological classes (Malerba and Orsenigo, 1997). While the first mentioned pattern is characterized by an enlarging innovative base or a widening, the second is characterized by a deepening and cumulative innovation. DC are expected to play a more relevant role in industries which have a low cumulativeness, because these industries require more flexible strategies, with a consequent need of constant reconfiguration of resources. As such, this aspect of industry structure should be investigated further, namely to explain the different patterns identified in T-KIBS and P-KIBS.

In the sub-samples of different firm sizes, the results were also distinct and allowed us to conclude that in micro enterprises, only firm age explains firm performance, in small enterprises, only LO and DC explain performance, and in medium enterprises, EO and DC are the only significant predictors of firm performance, where DC have a positive relationship and EO has a negative impact on firm performance. Once more, we conclude that EO has different impacts, depending both on external and internal contingent variables. There is also a possible statistical effect implicit on these results,

---

[42] In the Schumpeterian literature, these patterns of innovation are also called "Mark I" and "Mark II", corresponding to the concepts proposed in Schumpeter (1934) and Schumpeter (1942).

since the sub-samples of micro and of medium enterprises are very small (n=24 and n=57, respectively) and the significance of the effects might be reduced.

However, we can also advance as another possible explanation, the fact that smaller enterprises rely heavily on learning-oriented behaviours, and through the routines and mechanisms present in these firms, these behaviours are augmented as firms get older. In medium enterprises, the significant predictors are DC and EO, so while the mechanisms of constantly adapting to change are advantageous, the behaviours associated with the discovery and exploitation of opportunities - through proactive, innovative and risk-taking attitudes and the associated capabilities to adjust the firm to constant internal and external changes – lower performance.

VIII.2 Discussion and conclusions relative to the indirect effects of strategic orientations, through dynamic capabilities, on firm performance

When considering the whole sample, we can see that EO and LO significantly improve firm performance through dynamic capabilities, while MO does not make a significant contribution. In the sub-sample of T-KIBS, both EO and LO significantly explain firm performance, through dynamic capabilities. However, MO has a negative effect on firm performance, through dynamic capabilities. In P-KIBS, only LO has a significant role in explaining performance. Considering the sub-samples of different firm sizes, the results were also distinct and allowed us to conclude that in micro enterprises, none of the SOs significantly explain firm performance, through DC; in small enterprises the only significant predictor is LO; in medium enterprises, both EO and LO significantly influence firm performance through DC.

Analyzing these results, we can state that LO has an important indirect effect on firm performance, through DC. This effect is present in the whole sample as well as in the sub-samples, except that of micro enterprises perhaps due to small sample size. In fact, most studies establish a link between knowledge and dynamic capabilities, as demonstrated below.

It is said that DC are valuable for creating competitive advantage because they have the ability to alter the firm resource base, i.e, to create, integrate, recombine, and release resources (Eisenhardt and Martin, 2000). While in moderately dynamic markets, DC assume the form of traditional routines and are embedded in existing and cumulative knowledge, in highly dynamic markets DC mainly rely on new knowledge, so they are simple, experiential and iterative, and have unpredictable outcomes (Eisenhardt and Martin, 2000).

Hence, competitive advantage does not result from DC but from resource configurations that managers build using DC (Eisenhardt and Martin, 2000). In other words, when managers use the entrepreneurial and learning attitudes of their employees, and through DC configure different resources, this can give them advantage over their competitors.

It is also said that when a firm possesses DC, this facilitates interactions and coordination between organizational agents, as well as learning processes of identifying, interpreting, reinterpreting and enacting the environment, thus increasing the ability to deal with the present conditions and with future challenges (Wilkens, Menzel, and Pawlowsky, 2004). Therefore, DC should be considered in articulation with knowledge management activities, since DC emphasize change processes in a higher level, and knowledge management activities deal with more concrete and identifiable processes (Nielsen, 2006).

So, if the firm wants to remain competitive, it should exploit existing knowledge-based competencies and explore new knowledge-based competencies (Zollo and Winter, 2002), i.e., the firm must focus on learning-oriented processes that allow it to be aware of market and technological trends, as well as possess dynamic capabilities that enables to adapt to those trends and to take advantage of fast changing environments.

Although there is not a consensus about where do DC come from, a growing number of researchers has been claiming that learning has an important role in this process. In fact, most of the recent approaches based on neo-Schumpeterian evolutionary theory focus on the firm as the main engine of economic evolution, mainly in the dynamic processes of change, so knowledge turns into the central explanatory variable, since the acquisition of new knowledge depends on the knowledge that a firm already has, as also implied in path dependencies (Teece, Pisano, and Shuen, 1997).

On the other hand, EO influences firm performance through DC, and this can be due to the awareness of potential opportunities that exist outside the firm and that can be explored and exploited by an innovative, proactive and risk-taking behaviour. Zahra (2008) proposes that while firms with a high MO are likely to identify opportunities (both expressed and latent needs), firms with a high EO can exploit such opportunities and achieve superior performance. This effect is present in T-KIBS but not in P-KIBS, which suggests that this exploitation of opportunities, and consequent repercussion on performance, happens more significantly in technological sectors related to information and knowledge functions than in sectors that feature physical functions. We suspect this effect is not significant in the sub-samples of micro and small enterprises, due to statistical effects, since these sub-samples have a small dimension.

So, our results confirm that superior performance arises from LO, and in some cases, EO, through DC that renew advantages over time in the form of Schumpeterian rents as pointed out by several scholars (e.g., Teece, Pisano, and Shuen, 1997; Winter, 1987).

A curious outcome, that we have not hypothesized, is the effect of MO on performance, in T-KIBS. In this sub-sector, while EO and LO have a positive influence on performance, through DC, MO revealed to have a negative effect. This can suggest that the main source of innovation in T-KIBS might be latent needs of customers, and when these firms focus on expressed needs of customers this may negatively impact performance. Likewise, generative learning, enhanced by LO, has a positive impact on T-KIBS, whereas adaptive learning, magnified by MO, leads to negative outcomes.

VIII.3 Discussion and conclusions relative to the total effects on firm performance

When we concentrate our attention on the **total effects**, the results in the whole sample show there are positive relationships between firm age, EO, and LO relative to firm performance, in KIBS. As to firm size, small enterprises (when compared with micro enterprises), have a negative impact on performance. In the sub-sample of T-KIBS, there are positive relationships between firm age, EO, and LO, relative to firm performance. On the other hand, in P-KIBS only firm size (small enterprises relative to micro enterprises), and LO explain firm performance, with LO positively influencing performance and small enterprises having a negative impact. In the sub-samples of different firm sizes, the results were also distinct and allowed us to conclude that in micro enterprises, only firm age explains firm performance; in small enterprises and in medium enterprises, LO is the only significant predictor of firm performance.

Therefore, we can state that in general KIBS benefit from entrepreneurial- and learning-oriented attitudes and behaviours which contribute to higher performance, while MO does not make a significant contribution.

Entrepreneurial-oriented firms engage in product market innovation, undertake risky ventures, and come up with proactive innovations (Miller, 1983), due to their methods, practices and decision-making style (Lumpkin and Dess, 1996), which justifies the innovative activities that help reaching a higher performance in KIBS. As we concluded through our previous regression analyses (presented in chapter V and in VII.1.1), not all dimensions of EO contribute equally to firm performance, being proactiveness the most important predictor of performance, while risk-taking and innovativeness contribute to performance in a lesser extent.

On the other hand, one of the central features of KIBS is the significance of knowledge (both tacit and codified), and the resulting innovative activities (Horgos and Koch, 2008), so learning-oriented firms differentiate from competitors through the possession and use of knowledge, which explains why LO and DC have a significant importance in predicting firm performance. Since these firms value knowledge, are open-minded and have a shared vision (Sinkula, Baker, and Noordewier, 1997), they question long-held assumptions and engage in several innovative activities, learning from their successes and mistakes through experience, which leads to higher performance.

The possession of dynamic capabilities also revealed an important feature in explaining firm performance, because in the dynamic environment where KIBS operate it is crucial to own certain strategic and organizational processes that use resources to match and create market change. Thus, it is expected that DC, when combined with the appropriate strategic orientations, could enhance firm performance.

The non-significance of market orientation can be related to the specificity of KIBS, which have a high degree of connectivity and interactivity with their providers and clients (Horgos and Koch, 2008; Miles, 2001) so in this “quaternary sector” a MO may not be as relevant as in other sectors because this aspect of culture is already ensured by the existent proximity between KIBS and client firms. For this reason, we can expect that the organizational system that enables the firm to identify the changes in the markets, the information dissemination within the firm, and responsiveness to the market is not achieved in the same way in KIBS as it is in other industries. The non-significant relationship between MO and firm performance in KIBS can also be due to the performance scale used in the present study, because it incorporates not only traditional measures of performance, but also customer value and social responsibility of the company, which were not accounted for in previous studies.

Some empirical studies conclude that MO may not lead to superior performance, in line with our results, and this is generally attributed to other reasons, namely the amount of time required before a market-oriented culture starts contributing to performance (Capon, Farley, Lehmann, and Hulbert, 1992; Greenley, 1995), and the fact that investment on product innovation might sacrifice MO (Suh, 2005), whereas some scholars conclude there is not a direct effect of MO on firm performance (e.g., Diamantopoulos and Hart, 1993; Han, Kim, and Srivastava, 1998; Jaworski and Kohli, 1993) but only an indirect effect (e.g., Baker an Sinkula, 1999a; Hult, Hurley, and Knight, 2004; Keskin, 2006). There is also reason to believe that the strength of this relationship may vary depending on industry characteristics, customer characteristics, or the type of performance measure used (Voss and Voss, 2000). On the other hand, MO does not benefit business activities in rapidly changing environments (Zhou and Li, 2010), as also has been noted by Hamel and Prahalad (1994) when they stated that customers are inherently myopic, in that they cannot foresee their future needs.

As to the control variables, our results suggest that firm age has a positive effect on firm performance, so older firms might have more efficient mechanisms and routines for assimilate knowledge and to develop dynamic capabilities and turn them into superior firm performance. On the contrary, small enterprises make a less effective utilization of resources and capabilities, when compared with micro enterprises but we would also expect a similar difference between medium enterprises relative to micro enterprises, and this difference is not statistically significant.

We could find no evidence of the hypothesis of Lumpkin and Dess (1996), that an EO may be especially important for small new entrants that are struggling to develop a management team, to organize resources efficiently, and to develop a strategy.

In T-KIBS the results were nearly equal to those of the whole sample. In P-KIBS, only learning-oriented attitudes and behaviours positively contribute to higher performance, while EO ceases to be significant. In fact, we confirm once more that LO has an important total effect on firm performance, as detailed previously in our discussion, and as concluded in most studies in this scientific area, which establish a link between knowledge and dynamic capabilities, impacting firm performance. P-KIBS do not benefit from an entrepreneurial-oriented culture, perhaps because innovativeness, risk-taking and proactiveness, when considered conjointly, do not have a total positive effect on the outcome.

Although many studies about EO use a unidimensional construct, our findings suggest that the several dimensions of EO, though correlated, may vary. In fact, Lumpkin and Dess (1996) have suggested that although the dimensions of EO are positively correlated, firms can vary in degree of innovativeness, risk-taking, and proactiveness so that firms are not equally entrepreneurial across all dimensions.

VIII.4 Practical contributions

We conclude that a firm should implement simultaneously several SOs and, because some of the SOs are treated as a component of the company culture - for example, according to some scholars, a successful market-oriented behaviour should be guided by a market-oriented culture (Deshpandé, Farley, and Webster, 1993; Slater and Narver, 1995) - firms must develop a more complex organizational culture and integrate multiple systems of beliefs.

Our results confirm that superior performance arises from LO, and in some cases, EO, not only directly but also through DC that renew advantages over time and allow a permanent adjustment to changing conditions. Therefore, organizations should promote learning, both individual (through training and seminars, for example) and organizational (through knowledge management). Employees should also be encouraged to pursue various kinds of knowledge, because it is important to have a wide knowledge base but it is also essential that employees and organizations learn to learn and question knowledge itself. KIBS should also promote the aggregation and dissemination of employees' knowledge throughout the organization, for example through organizational processes that encourage individuals to interact and collaborate with peers, as well as promote a cross-functional integration.

Our results may suggest that the main source of innovation in KIBS might be latent needs of customers, instead of expressed needs, especially in T-KIBS. In the same line of reasoning, generative learning seems more important than adaptive learning. We do not think that these firms should neglect expressed needs or ignore adaptive learning, but instead they should prioritize latent needs of customers over expressed needs as well as give primacy to generative learning over adaptive learning. Moreover, because there is a strong interactivity or even co-production between KIBS and their clients, the organizational processes of opportunities detection might be different from more traditional sectors, where firms rely on technological and market watching to be constantly alert to changes and to completely understand customers, competitors, and technological developments.

As to EO, its importance varies across sub-samples, but when the whole sample of KIBS was considered, we came to the conclusion that firms benefit from entrepreneurial-oriented attitudes and behaviours, which contribute to higher performance. Thus, KIBS should mainly encourage proactiveness, and to a less extent, innovativeness and risk-taking.

At last, we can expect that older firms benefit more from knowledge and dynamic capabilities than younger firms so, once more, firms should enhance the development of mechanisms and routines for internalize and diffuse knowledge and to develop adaptive capabilities and transform them into higher firm performance.

VIII.5 Research limitations and directions for future research

The cross-sectional approach adopted in this research does not allow to understand the effects of SOs and DC on firm performance over time, which would only be possible through the adoption of a longitudinal design, where the questions regarding the independent variables should be posed earlier than questions relative to the dependent variable, since there is a time lag between SOs, DC and performance. Therefore, in the present study we cannot infer causality, since we do not know for sure the direction of the effects, but we can state that there is a relationship between the considered variables. Anyway, because we used perceptual measures of performance, the inquired top managers could have incorporated these effects in their opinions, which would not have happened if we have used objective measures of performance.

The external validity of our results is somehow limited, since our sample focused on KIBS that operate in Portugal, and it is argued that successful strategies differ from country to country (Stremersch and Tellis, 2004). Although our focus on a subset of the service sector can limit the generalizability of the findings, this was a conscious option and moreover it should be noted that single-industry studies are preferred when the internal validity of the study is more important than the generalizability of the results (McKee, Varadarajan, and Pride, 1989, quoted by Voss and Voss, 2000).

Another limitation respects the use of self-reported measures from only one individual in each organization. Nevertheless, there is evidence that organizational performance assessed by self-reported measures is positively correlated with objective performance indicators (Dollinger and Golden, 1992), and the use of self-reported and perceived measures is a usual method in this field of research (Lyon, Lumpkin, and Dess, 2000). The use of perceptual firm performance measures was nearly an imposition in our research because there is no legal requirement in Portugal to publish the financial results of the firms under study and we had no other way to assess the items of social responsibility of the company and customer value.

We also assumed that asking for objective financial performance data in our questionnaire would limit the response rate with the resulting statistical limitations that would bring, so we chose to include only perceptual indicators. One of the possible solutions to overcome this limitation, would be to obtain responses from multiple informants which would allow us to cross-check data. Given that self-reported measures were used for both dependent and independent variables, there might be common method variance, which could be overcome in future studies with the use of objective data on performance.

There could also be some limitations with respect to our measurement scales. Relative to LO, this is one of the dimensions of the learning organization construct and, for reasons of theoretical consistency, we focused only on this dimension and not on the whole construct of a learning organization. The learning organization construct is multidimensional, consisting of team orientation, systems orientation, memory orientation, customer orientation and relationship commitment, besides LO. So, some dimensions of a learning organization were not addressed in the present study, and future research could examine those.

The measurement of DC was made relying on the renewal activities listed in the Community Innovation Surveys (CIS) of the European Union, following Jantunen, Puumalainen, Saarenketo, and Kylaheiko (2005), while some scholars contend that DC are a multidimensional construct composed of different components, namely absorptive, adaptive, innovative and networking capabilities (Parida, 2007; Wang and Ahmed, 2007). Future research should examine these different components, to enrich the understanding of DC.

In what concerns EO, we are not completely sure that its three dimensions were correctly captured, since EO's Cronbach's alpha is the lowest one when comparing the measurement scales included in our questionnaire and EO-innovativeness and EO-risk-taking have low Cronbach's alphas, well below the established limit of 0.70. Because in EO scale each respondent evaluates statements using a five-point Likert scale anchored by extreme viewpoints, instead of ranging from "strongly disagree" to "strongly agree", as happens with the other SOs, this could have led to some misunderstandings thus lowering Cronbach's alphas.

With respect to MO, Deshpandé, Farley, and Webster (1993) concluded that there is only weak agreement between the customers' and the marketers' perception of MO, so we cannot be certain that the reported views of CEOs about market-oriented behaviours correspond to the customers insights on this matter.

Relative to our firm performance measure, we added three items to the original scale, but as we obtained a very high Cronbach's alpha, this guarantees that the identified facets really reflect a single variable, so in our view the use of our performance measure enriches the understanding of the origins of success.

On the other hand, in the present study we do not examine contingency effects of market dynamics and other external factors, as well as contingency effects of organizational characteristics, which could affect the relationship between SOs, dynamic capabilities and firm performance. This is an aspect that should be included in future research studies.

Our present study contributes to the existing literature by adding understanding of the direct and indirect relationship between SOs and firm performance, but a more detailed analysis would be required to understand the processes by which these relationships are enhanced, namely the processes of knowledge management or the mechanisms of discovering and exploiting opportunities or the routines that enable to adapt to change.

Employee orientation was not included in our present study, mainly for reasons of parsimony and because it focus on organizational processes which would oblige us to explore other assumptions of the origins of higher performance, besides those included in the present SOs. Future studies should explore other lines of investigation, and focus on organizational processes such as decentralized decision-making processes, investment in employees' development, and delegation of responsibility, which can have an important role in explaining firm performance, besides those explored in the present research.

Finally, the distinct results between P-KIBS and T-KIBS could be linked to the concepts of "creative destruction" and "creative accumulation" (Schumpeter, 1934, 1942), corresponding to different industry structures and distinct patterns of innovation and therefore these aspects should be investigated further, namely to explain the different patterns identified in T-KIBS and P-KIBS.

BIBLIOGRAPHY

Abell, D. F. (1980), *Defining the business: the starting point of strategic planning*. Englewood Cliffs, NJ, Prentice-Hall.

Abetti, P. A. (1991), "The impact of technology on corporate strategy and organization: illustrative cases and lessons". *International Journal of Technology Management*, 40-58.

Acs, Z. and Audretsch, D. (1987), "Innovation, market structure and firm size". *The Review of Economics and Statistics*, 71, 567-574.

Adler, P. (1989), "Technology strategy: guide to the literature" in R. S. Rosenbloom and R. A. Burgelman (Eds.), *Research on Technological Innovation, Management and Policy,* 1-25.

Agarwal, S., Erramilli, M. K., and Dev, C. S. (2003), "Market orientation and performance in service firms: role of innovation". *Journal of Services Marketing*, 17 (1), 68-82.

Aghion, P., Bloom, N., Blundell, R., Griffith, R., and Howitt, P. (2005), "Competition and innovation: an inverted-U relationship". *The Quarterly Journal of Economics,* 120 (2), 701.

Aghion, P., Carlin, W., and Schaffer, M. E. (2002), "Competition, innovation and growth in transition: exploring the interaction between policies". *William Davidson Institute Working Paper* No. 501.

Ahuja, G. and Lampert, M. (2001), "Entrepreneurship in the large corporation: A longitudinal study of how established firms create breakthrough inventions". *Strategic Management Journal*, 22, 521-543.

Aiken, L. S. and West, S. G. (1991), *Multiple Regression: Testing and Interpreting Interactions*. Newbury Park, CA, Sage.

Albors, J., Hervas, J. L., and Marquez, P. (2008), "Application of the KISA concept to innovation dynamics and its impact on firms' performance". M*anagement Research News* , 31 (6), 404-417.

Aldas-Manzano, J., Küster, I., and Vila, N. (2005), "Market orientation and innovation: an inter-relationship analysis". *European Journal of Innovation Management*, 8 (4), 437-452.

Allen, M. J. and Yen, W. M. (1979), *Introduction to Measurement Theory*. Long Grove, Waveland Press.

Allen, T. (1986), *Managing the Flow of Technology*. Cambridge, MA, MIT Press.

Alvarez, S. A. and Barney, J. (2007), “Discovery and creation: Alternative theories of entrepreneurial action”. *Strategic Entrepreneurship Journal*, 1 (11), 11-26.

Amit, R. and Schoemaker, P. (1993), “Strategic assets and organizational rent”. *Strategic Management Journal*, 14 (1), 33-46.

Amit, R. and Zott, C. (2001), “Value creation in e-business”. *Strategic Management Journal*, 22 (6/7), 493-520.

Andrews, K. R. (1971), *The concept of corporate strategy*. Homewood, IL, Dow Jones Irwin.

Angle, H. L. (1989), “Psychology and organizational innovation” in Van de Ven, A. H., Angle, H. L., and Pool, M. S. (Eds.), *Research on the Management of Innovation,* New York, Harper and Row, 135-170.

Ansoff, H. I. (1965), *Corporate Strategy*. New York, McGraw-Hill.

Anwar, S. A. (2008), “A Factor Analytic Investigation of the Construct of Market Orientation”. *International journal of Management,* 25 (1), 186-197.

Appiah-Adu, K. (1997), “Market orientation and performance: do the findings established in large firms hold in the small business sector?”. *Journal of Euro-Marketing*, 6 (3), 1-26.

Aragón-Sánchez, A. and Sánchez-Marín, G. (2005), “Strategic orientation, management characteristics, and performance: a study of Spanish SMEs”. *Journal of Small Business Management*, 43 (3), 287-308.

Argote, L. (1999), *Organizational Learning: Creating, Retaining, and Transferring Knowledge*. Boston, MA, Kluwer Academic.

Argote, L. and Ingram, P. (2000), “Knowledge transfer: a basis for competitive advantage in firms”. *Organizational Behavior and Human Decision Processes*, 82 (1), 150-169.

Argyris, C. and Schon, D. A. (1978), *Organizational Learning: A Theory of Action Perspective*. Reading, MA, Addison-Wesley.

Armstrong, J. S. and Overton, T. S. (1977), “Estimating non-response bias in mail surveys”. *Journal of Marketing Research*, 14 (3), 396-402.

Arrow, K. (1962), *Economic welfare and the allocation of resources for invention* in R. Nelson (Ed.), *The Rate and Direction of Inventive Activity.* Princeton, NJ, Princeton University Press, 609-626.

Atuahene-Gima, K. (1995), “An exploratory analysis of the impact of market orientation on new product performance”. *Journal of Product Innovation Management*, 12, 275-293.

Atuahene-Gima, K. (1996), "Market orientation and innovation". *Journal of Business Research*, 35, 93-103.

Atuahene-Gima, K. and Ko, A. (2001), "An empirical investigation of the effect of market orientation and entrepreneurship orientation alignment on product innovation". *Organization Science*, 12 (1), 54-74.

Audretsch, D., Horst, R. van der, Kwaak, T., and Thurik, R. (2009), *First Section of the Annual Report on EU Small and Medium-sized Enterprises*, EIM (available online through http://ec.europa.eu/enterprise/policies/sme/files/craft/sme_perf_review/doc_08/ spr08_annual_reporten.pdf)

Auger, P., BarNir, A., and Gallaugher, J. M. (2003), "Strategic orientation, competition, and Internet-based electronic commerce". *Information Technology and Management*, 4 (2-3), 139-164.

Augier, M. and Teece, D. J. (2007), "Dynamic capabilities and multinational enterprise: Penrosean insights and omissions". *Management International Review*, 47 (2), 175-192.

Aurora, A. and Gambardella, A. (1990), "Complementarity and external linkages: the strategies of the large firms in biotechnology". *Journal of Industrial Economics*, 361-379.

Bacon, N., Ackers, P., Storey, J., and Coates, D. (1996), "It's a small world: Managing human resources in small businesses". *International Journal of Human Resource Management*, 7, 82-100.

Baden-Fuller, C. (1995), "Strategic innovation, corporate entrepreneurship and matching outside-in to inside-out approaches to strategy research". *British Journal of Management*, 6, 3-16.

Bagchi-Sem, S. (2001), "Product innovation and competitive advantage in an area of industrialized decline: the Niagara region in Canada". *Technovation,* 21 (1), 46-61.

Bagozzi, R. P. (1984), "Expectancy-value attitude models: An analysis of critical measurement issues", *International Journal of Research in Marketing*, 1, 295-310.

Bain, J. S. (1956), *Barriers to New Competition*. Cambridge, Harvard University Press.

Baker, W. E. and Sinkula, J. M. (1999a), "Learning orientation, market orientation, and innovation: integrating and extending models of organizational performance". *Journal of Market Focused Management*, 4 (4), 295-308.

Baker, W. E. and Sinkula, J. M. (1999b), "The synergistic effect of market orientation and learning orientation on organizational performance". *Journal of the Academy of Marketing Science*, 27 (4), 411-427.

Bamberger, I. (1989), "Developing competitive advantage in small and medium size firms". *Long Range Planning*, 22 (5), 80-88.

Barney, J. B. (1986), “Strategic factor markets: expectations, luck and business strategy”. *Management Science*, 32, 1231-1241.

Barney, J. B. (1991), “Firm resources and sustained competitive advantage”. *Journal of Management*, 17, 99-120.

Barney, J. B. (1995), “Looking inside for competitive advantage”. *The Academy of Management Executive,* 9 (4), 49-61.

Barney, J. B. (1997), *Gaining and Sustaining Competitive Advantage.* Reading, MA, Addison-Wesley.

Barney, J. B. (2001), “Resource-based theories of competitive advantage: a ten year retrospective on the resource-based view”. *Journal of Management*, 27, 643-650.

Barney, J. B. and Arikan, A. M. (2001), “The resource-based view: origins and implications” in Hitt, M. A., Freeman, R. E. and Harrison, J. S. (eds.), *The Blackwell Handbook of Strategic Management.* Oxford, Blackwell Publishers, 124-188.

Barney, J. B., Wright, M., and Ketchen, D. J. (2001), “The resource-based view of the firm: Ten years after 1991”. *Journal of Management*, 27 (6), 625-641.

Barras, R. (1986), “Towards a theory of innovation in services”. *Research Policy*, 15, 161-173.

Barras, R. (1990), “Interactive innovation in financial and business services: the vanguard of the service revolution”. *Research Policy*, 19, 215-237.

Barrett, H., Balloun, J. L., and Weinstein, A. (2000), “Marketing mix factors as moderators of the corporate entrepreneurship-business performance relationship - A multistage, multivariate analysis”. *Journal of Market Theory and Practice*, 8 (2), 50–62.

Barrett, H., and Weinstein, A. (1998), “The effect of market orientation and organizational flexibility on corporate entrepreneurship”. *EntrepreneurshipTheory and Practice*, 23 (1), 57–70.

Barringer, B. R. and Bluedorn, A. C. (1999), “The relationship between corporate entrepreneurship and strategic management”. *Strategic Management Journal,* 20 (5), 421-444.

Becker, M. C. (2003), “The concept of routines twenty years after Nelson and Winter (1982): a review of the literature”. DRUID Working Paper No 03-06.

Becker, M. C. (2004), “Organizational routines: a review of the literature”. *Industrial and Corporate Change*, 13 (4), 643-678.

Berthon, P., Hulbert, J. M., and Pitt, L. F. (1999), “To serve or create? Strategic orientations toward customers and innovation”. *California Management Review*, 42 (1), Fall, 37-58.

Berthon, P., Hulbert, J. M., and Pitt, L. F. (2004), “Innovation or customer orientation? An empirical investigation”. *European Journal of Marketing*, 38 (9/10), 1065-1090.

Bettencourt, L. A., Ostrom, A. L., Brown, S. W. and Roundtree, R. I. (2002), “Client co-production in knowledge-intensive business services”. *California Management Review*, 44, 100-128.

Bharadwaj, A. S. (2000), “A resource-based perspective on information technology capability and firm performance: an empirical investigation”. *MIS Quarterly*, 24 (1), 169-196.

Birley, S. and Westhead, P. (1990), “Growth and performance contrasts between ‘types’ of small firms”. *Strategic Management Journal,* 11 (7), 535-557.

Black, J. A. and Boal, K. B. (1994), “Strategic resources: Traits, configurations, and paths to sustainable competitive advantage”. *Strategic Management Journal,* 15, 131-148.

Blumentritt, T. and Danis, W. M. (2006), “Business strategy types and innovative practices”. *Journal of Managerial Issues*, 18 (2), 274-291.

Blundell, R., Griffith, R., and Van Reenen, J. (1995), “Dynamic count data models of technological innovation”. *Economic Journal,* 105 (127), 333-344.

Blundell, R., Griffith, R., and Van Reenen, J. (1999), “Market share, market value and innovation in a panel of British manufacturing firms”. *Review of Economic Studies,* 66 (228), 529-554.

Bosma, N., Levie, J., and Global Entrepreneurship Research Association (2010), *Global Entrepreneurship Monitor 2009 Global Report.* London, UK, London Business School and Babson Park, MA, Babson College. Available online through http://www.gemconsortium.org.

Bourgeois, L. J. (1980), “Strategy and environment: a conceptual integration”. *Academy of Management Review,* 5 (1), 25-39.

Bourgeois, L. J. (1986), “Performance and consensus”. *Strategic Management Journal,* 1, 227-248.

Bowen, H. and Wiersema, M. (1999), “Matching method to paradigm in strategy research: Limitations of cross-sectional analysis and some methodological alternatives”. *Strategic Management Journal,* 20 (7), 625-636.

Bowerman, B. L. and O’Connell, R. T. (1990), *Linear Statistical Models: An Applied Approach*. 2nd Edition, Belmont, CA, Duxbury.

Bozeman, B. and Link, A. (1983), *Investments in Technology: Corporate Strategies and Public Policy Alternatives.* New York, Praeger.

Branderburger, A. M. and Nalebuff, B. J. (1996), *Co-Opetition : A Revolution Mindset that Combines Competition and Cooperation: The Game Theory Strategy that's Changing the Game of Business.* New York, Currency Doubleday.

Brazael, D. V. (1999), "The genesis of entrepreneurship". *Entrepreneurship Theory and Practice*, 23 (3), 29-45.

Breman, P. and Dalgic, T. (1998) "The learning organization and market orientation: a study of export companies in The Netherlands" in Ford, J. B. and Honeycutt, E. D. (eds.), *Developments in Marketing Science 21*. Coral Gables, FL, AMS, p. 214-231.

Bromiley, P. and Fleming, L. (2002), "The resource-based view of strategy: A behaviorist critique". in Augier, M. and March, J. G. (eds.), *The economics of choice, change and organization*. Cheltenham, UK, Edward Elgar, 319-336.

Brown, L. A. (1981), *Innovation Diffusion*. London/New York, Methuen & Co.

Brown, S. (1996), "Art or science? Fifty years of marketing debate". *Journal of Marketing Management*, 12 (4), 243–268.

Brown, S. L. and Eisenhardt, K. M. (1998), *Competing on the Edge: Strategy as Structured Chaos*. Boston, MA, Harvard Business School Press.

Brown, T. E., Davidsson, P., and Wiklund, J. (2001), "An operationalization of Stevenson's conceptualization of entrepreneurship as opportunity-based firm behavior". *Strategic Management Journal*, 22 (10), 953-968.

Burgelman, R. A. (1983), "A process model of internal corporate venturing in the diversified major firm". *Administrative Science Quarterly*, 28, 223-244.

Burgelman, R. A. (1996), "A process model of strategic business exit: Implications for an evolutionary perspective on strategy". *Strategic Management Journal*, 17, 193-214.

Burgelman, R. A. and Grove, A. (2007), "Let chaos reign, then rein in chaos – repeatedly: managing strategic dynamics for corporate longevity". *Strategic Management Journal*, 28, 965-979.

Buzzell, R. D. and Gale, B. T. (1987), *The PIMS Principles*. New York, NY, Free Press.

Buzzell, R. D. and Wiersema, F. D. (1981), "Successful share building strategies". *Harvard Business Review*, 59 (1), 135-144.

Buzzell, R. D., Gale, B. T., and Sultan, R. G. M. (1975), "Market share: a key to profitability". *Harvard Business Review*, 51, 97-106.

Cahill, D. J. (1998), "Organizational decline and innovation: are entrepreneurs a special case?". *Academy of Management Review*, 23, 387-388.

Cainelli, G., Evangelista, R., and Savona, M. (2006), “Innovation and economic performance in services: a firm-level analysis”. *Cambridge Journal of Economics,* 30 (3), 435-458.

Calantone, R. J., Cavusgil, S.T., and Zhao, Y. (2002), "Learning orientation, firm innovation capability, and firm performance", *Industrial Marketing Management*, 31, 515-524.

Camacho, J. A. and Rodriguez, M. (2005), “How innovative are services? An empirical analysis for Spain”. *Service Industries Journal*, 25 (2), 253-271.

Cantillon, R. (1734), *Essai sur la nature du commerce en general* [Essay on the nature of general commerce]. (Henry Higgs, Trans.) London, Macmillan.

Capon, N., Farley, J., Lehmann, D. R., and Hulbert, J. M. (1992), “Profiles of product innovators among large U. S. manufacturers”. *Management Science,* 38, 157-169.

Carrillat, F. A., Jaramillo, F., and Locander, W. B. (2004), “Market-driving organizations: A framework”. *Academy of Marketing Science Review*, 2004, 1-16.

Cater, T. (2001), “Knowledge management as a means of developing a firm’s competitive advantage”. *Management*, 6 (1-2), 133-153.

Cater, T. and Pucko, D. (2006), “Models of competition between firms: the case of Slovenia’s (post)transitional economy”. *Journal for East European Management Studies*, 11 (2), 140-172.

Caves, R. and Porter, M. (1977), “From entry barriers to mobility barriers: Conjectural decisions and contrived deterrence to new competition“. *The Quarterly Journal of Economics,* 91, 241-262.

Cavusgil, E., Seggie, S. H., and Talay, M. B. (2007), “Dynamic capabilities view: Foundations and research agenda”. *Journal of Marketing Theory and Practice*, 15 (2), 159-166.

Chaffee, E. E. (1985), “Three models of strategy”. *Academy of Management Review*, 10 (1), 89-98.

Chaganti, R. and Sambharya, R. (1987), “Strategic orientation and characteristics of upper management”. *Strategic Management Journal*, 8 (4), 393-401.

Chandler, A. D., Jr. (1962), *Strategy and Structure*. Cambridge, MA, MIT Press.

Chandler, A. D. (1990), “The enduring logic of industrial success”. *Harvard Business Review,* 68 (2), 130-140.

Chandler, G. and Hanks, S. (1993), “Measuring performance of emerging businesses: A validation study”. *Journal of Business Venturing*, 8, 391-408.

Chaston, I., Badger, B., and Sadler-Smith, E. (2001), "Organizational learning: An empirical assessment of process in small UK manufacturing firms". *Journal of Small Business Management*, 39, 139-151.

Chesbrough, H. (2003), *Open Innovation*. Cambridge, MA, Harvard Business Press.

Chesbrough, H. (2006), *Open Business Models*. Cambridge, MA, Harvard Business Press.

Child, J. (1972), "Organizational structure, environment and performance: the role of strategic choice". *Sociology,* 6 (1), 1-22.

Choi, Y. R. and Shepherd, D. (2004), "Entrepreneurs' decisions to exploit opportunities". *Journal of Management*, 30 (3), 377-395.

Chow, I. H. (2006), "The relationship between entrepreneurial orientation and firm performance in China". *Advanced Management Journal,* 71 (3), 11-20.

Chrisman, J. J., Hofer, C. W., and Boulton, W. R. (1988), "Toward a system for classifying business strategies". *The Academy of Management Review*, 13 (3), 413-428.

Christensen, C. M. (1997), *The Innovator's Dilemma*. Boston, MA, Harvard Business School Press.

Christensen, C. M. and Bower, J. L. (1996), "Customer power, strategic investment, and the failure of leading firms". *Strategic Management Journal,* 17 (3), 197-218.

Christensen, C. M. and Raynor, M. E. (2003), *The Innovator's Solution: Creating and Sustaining Successful Growth*. Boston, MA, Harvard Business School Press.

Churchill, N. C. and Muzyka, D. F. (1994) "Defining and conceptualizing entrepreneurship: a process approach" in G. E. Hills (Ed.), *Marketing and Entrepreneurship,* Westport, CT, Quorum Books, 11-23.

Coase, R. (1937), "The nature of the firm". *Economica*, 4, 386-405.

Cockburn, I. and Henderson, R. (1998), "Absorptive capacity, coautoring behavior and the organization of research in drug discovery". *Journal of Industrial Economics*, 46, 157-182.

Cohen, J. (1978), "Partial products are interactions; partial powers are curve components", *Psychological Bulletin*, 70, 259-267.

Cohen, J. and Cohen, P. (1983), *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*. 2nd Edition, Hillsdale, NJ, Lawrence Erlbaum Associates.

Cohen, W. and Klepper, S. (1996), "Firm size and the nature of innovation within industries: the case of process and product R&D". *Review of Economics and Statistics*, 232-243.

Cohen, W. and Levin, R. (1989), *Empirical studies of innovation and market structure* in Schmalensee, R. e Willig, R. (Eds.), *Handbook of Industrial Organisation*. North-Holland, 1060-1107.

Cohen, W. M. and Levinthal, D. A. (1990), "Absorptive capacity: a new perspective on learning and innovation". *Administrative Science Quarterly*, 35, 128-152.

Collis, D. (1994), "How valuable are organizational capabilities?". *Strategic Management Journal*, 15, 143-152.

Conant, J. S., Mokwa, M. P., and Varadarajan, P. R. (1990), "Strategic types, distinctive marketing competencies and organizational performance: a multiple measures based study". *Strategic Management Journal*, 11 (5), 365-383.

Congden, S. W. and Schroeder, D. M. (1996), "Competitive strategy and the adoption and usage of process innovation". *International Journal of Commerce & Management,* 6 (3/4), 5.

Connor, K. (1991), "Theory of the firm: firm resources and other economic theories". *Journal of Management*, 17 (1), 121-154.

Contractor, F. (1983), "Technology licensing practice in US companies: corporate and public policy implications". *Columbia Journal of World Business*, 18, 80-88.

Cook, T. D. and Campbell, D. T. (1979), *Quasi-experimental design*. Boston, Houghton Mifflin.

Cools, E. and den Broeck, H. V. (2007), "The Hunt for the heffalump continues: Can trait and cognitive characteristics predict entrepreneurial orientation?". *Journal of Small Business Strategy*, 18 (2), 23-41.

Cooper, R. (1987), "Defining the new product strategy". *IEEE Transactions on Engineering Management,* August, 184-193.

Corrocher, N., Cusmano, L., and Morrison, A. (2009), "Modes of innovation in knowledge-intensive business services evidence from Lombardy". *Journal of Evolutionary Economics*, 19, 173-196.

Coulthard, M. (2007), "The role of entrepreneurial orientation on firm performance and the potential influence of relational dynamism". *Journal of Global Business and Technology,* 3 (1), 29-39.

Covin, J. G. (1991), "Entrepreneurial versus conservative firms: A comparison of strategies and performance". *Journal of Management Studies,* 28 (5), 439-462.

Covin, J. G. and Covin, T. J. (1990), "Competitive aggressiveness, environmental context, and small firm performance". *Entrepreneurship Theory & Practice*, 14, 35-50.

Covin, J. G. and Miles, M. P. (1999), "Corporate entrepreneurship and the pursuit of competitive advantage". *Entrepreneurship Theory and Practice*, 23 (3), 47-63.

Covin, J. G. and Slevin, D. P. (1988), "The influence of organization structure on the utility of an entrepreneurial top management style". *Journal of Management Studies,* 25 (3), 217-234.

Covin, J. G. and Slevin, D. P. (1989), "Strategic management of small firms in hostile and benign environments". *Strategic Management Journal*, 10, 75-87.

Covin, J. G. and Slevin, D. P. (1991), "A conceptual model of entrepreneurship as firm behavior". *Entrepreneurship Theory & Practice*, 16 (1), 7-25.

Covin, J. G., Green, K. M., and Slevin, D. P. (2006), "Strategic process effects on the entrepreneurial orientation-sales growth rate relationship". *Entrepreneurship Theory & Practice*, 30 (1), 57-81.

Creswell, J. W. (2003), *Research Design: Qualitative, Quantitative and Mixed Method Approaches*. California, Sage.

Crotty, M. (1998), *The Foundations of Social Research: Meaning and Perspective in the Research Process*. London, Sage.

Cunha, M. P. and Cunha, J. V. (2006), "Towards a complexity theory of strategy". *Management Decision*, 44 (7), 839-850.

Cyert, R. M. and March, J. G. (1963), *A Behavioral Theory of the Firm*. Englewood Cliffs, New Jersey, Prentice-Hall.

Czarnitzki, D. and Spielkamp, A. (2003), "Business services in Germany: Bridges for innovation". *The Service Industries Journal*, 23 (2), 1.

Daily, C. M. and Dollinger, M. J. (1993), "Alternative methodologies for identifying family- versus nonfamily-managed businesses". *Journal of Small Business Management*, 31 (2), 79-90.

Damanpour, F. (1991), "Organizational innovations: a meta-analysis of effects of determinants and moderators". *Academy of Management Journal*, 34 (3), 555-590.

Davies, H. and Ko, D. (2006), "Up-grading and performance: The role of design, technology and business strategy in Hong Kong's electronics industry". *Asia Pacific Journal of Management*, 23, 255-282.

Davig, W. (1986), "Business strategies in smaller manufacturing firms". *Journal of Small Business Management*, 24 (1), 38-47.

Day, G. S. (1994), "The capabilities of market-driven organizations". *Journal of Marketing*, 58 (4), 37-52.

Day, G. S. (1999), "Creating a market-driven organization". *Sloan Management Review*, 41 (1), 11.

Day, G. S. and Wensley, R. (1983), "Marketing theory with a strategic orientation". *Journal of Marketing*, 47, 79-89.

De Backer, K., López-Bassols, V., and Martinez, C. (2008), "Open innovation in a global perspective: What do existing data tell us?". *OECD Science, Technology and Industry Working Papers,* 2008/4, OECD Publishing, OECD.

De Clercq, D. and Rius, I. B. (2007), "Organizational commitment in Mexican small and medium-sized firms: The role of work status, organizational climate, and entrepreneurial orientation". *Journal of Small Business Management*, 45 (4), 467-490.

De Clercq, D., Sapienza, H. J., and Crijns, H. (2005), "The internationalization of small and medium-sized firms". *Small Business Economics*, 24, 409-419.

Den Hertog, P. D. (2000), "Knowledge-intensive business services as co-producers of innovation". *International Journal of Innovation Management*, 4 (4), 491-528.

Deshpandé, R. and Farley, J. U. (1998), "Measuring market orientation: A generalization and synthesis", *Journal of Market Focused Management*, 2 (3), 213-232.

Deshpandé, R. and Farley, J. U. (2000), "Market focused organizational change in China", *Journal of Global Marketing*, 14 (1/2), 7-35.

Deshpandé, R. and Farley, J. U. (2004), "Organizational culture, market orientation, innovativeness, and firm performance: An international research odyssey", *International Journal of Research in Marketing*, 21, 3-22.

Deshpandé, R., Farley, J. U., and Bowman, D. (2004), "Tigers, dragons, and others: Profiling high performance in Asian firms", *Journal of International Marketing*, 12, 5-29.

Deshpandé, R., Farley, J. U., and Webster, F. E. Jr. (1993), "Corporate culture, customer orientation, and innovativeness in Japanese firms: a quadrad analysis", *Journal of Marketing*, 57 (1), 23-37.

Deshpandé, R., Farley, J. U., and Webster, F. E. Jr. (2000), "Triad lessons: generalizing results on high performance firms in five business-to-business markets", *International Journal of Research in Marketing*, 17 (4), 353-362.

Dess, G. G. and Beard, D. W. (1984), "Dimensions of organizational task environment". *Administrative Science Quarterly,* 29, 52-73.

Dess, G. G. and Davis, P. S. (1984), "Porter's (1980) generic strategies as determinants of strategic group membership and organizational performance". *Academy of Management Journal,* September, 27 (3), 467-488.

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,* 29 (3), 351-378.

Dess, G. G., Lumpkin, G. T., and Covin, J. G. (1997), “Entrepreneurial strategy making and firm performance: Tests of contingency and configurational models”. *Strategic Management Journal,* 18 (9), 677-695.

DeVellis, R. F. (1991), *Scale Development: Theory and applications*, Newbury Park, CA, Sage.

Diamantopoulos, A. and Cadogan, J. W. (1996), “Internationalizing the market orientation construct: an in-depth interview approach”. *Journal of Strategic Marketing*, 4 (1), 23-52.

Diamantopoulos, A. and Hart, S. (1993), “Linking market orientation to company performance: Preliminary work on Kohli and Jaworski’s framework”. *Journal of Strategic Marketing*, 1, 93-122.

Dickson, P. R. (1992), “Toward a general theory of competitive rationality”. *Journal of Marketing*, 56 (1), 69-83.

Dickson, P. R. (1996), “The static and dynamic mechanisms of competition: A comment on Hunt and Morgan’s comparative advantage theory”. *Journal of Marketing*, 60, 102-106.

Dickson, P. H. and Weaver, K. M. (1997), “Environmental determinants and individual-level moderators of alliance use”. *Academy of Management Journal,* 40 (2), 404-425.

Dierickx, I. and Cool, K. (1989), “Asset stock accumulation and sustainability of competitive advantage”. *Management Science*, 35, 1504-1511.

Dodge, Y. (2003), *The Oxford Dictionary of Statistical Terms,* Oxford, Oxford University Press.

Dodgson, M. (1991), *The Management of Technological Learning: Lessons from a Biotechnology Company.* Berlin, Walter & Gruyter.

Dollinger, M. J. and Golden, P.A. (1992), “International and collective strategies in small firms: Environmental effects and performance”. *Journal of Management*, 18, 695-715.

Dosi, G. (1982), “Technological paradigms and technological trajectories”. *Research Policy*, 11 (3), 147-162.

Doty, D. H., Glick, W. H., and Huber, G. P. (1993), “Fit, equifinality and organizational effectiveness: a test of two configurational theories”. *Academy of Management Journal*, 36 (6), 1196-1250.

Dougherty, D. (1992), “Interpretive barriers to successful product innovation in large firms”. *Organization Science*, 3 (2), 179-202.

Dougherty, D. and Heller, T. (1994), “The illegitimacy of successful product innovation in established firms”. *Organization Science*, 5 (2), 200-218.

Edmondson, A. C., Bohmer, R. M., and Pisano, G. P. (2001), “Disrupted routines: Team learning and new technology implementation in hospitals”. *Administrative Science Quarterly*, 46 (4), 685-716.

Edvinsson, L. (1997), “Developing intellectual capital at Scandia”. *Long-Range Planning*, 30 (3), 374-384.

Edvinsson, L. and Malone, M. (1997), *Intellectual Capital: The Proven Way to Establish your Company’s Real Value by Measuring its Hidden Brainpower*. Piatkus, London.

Eisenhardt, K. M. and Martin, J. A. (2000), “Dynamic capabilities: what are they?”. *Strategic Management Journal*, 21, 1105-1121.

Eisenhardt, K. M. and Zbaracki, M. J. (1992), “Strategic decision making”. *Strategic Management Journal*, 13, 17-37.

Eng, L. G. (1994), “Using generic strategies: some caveats”. *Singapore Management Review*, 16 (1), 43-48.

Erdil, S., Erdil, O., and Keskin, H. (2004), "The relationships between market orientation, firm innovativeness and innovation performance". *Journal of Global Business and Technology*, 1 (1), 1-11.

Ettlie, J. E. (1983), “Organizational policy and innovation among suppliers to the food processing sector”. *Academy of Management Journal*, 26, 27-44.

Ettlie, J. E., Bridges, W. P., and O’Keefe, R. D. (1984), “Organizational strategy and structural differences for radical versus incremental innovation”. *Management Science*, 30, 682-695.

European Commission (1995), *Green Paper on Innovation.* COM (95) 688 final, 20 December 1995.

European Commission (2008), “NACE Rev. 2 - Statistical classification of economic activities in the European Community”, Eurostat Methodologies and Working Papers, Luxembourg: Office for Official Publications of the European Communities, available online through http://epp.eurostat.ec.europa.eu/portal/page/portal/nace_rev2/ introduction.

Evangelista, R., Perani, G., Rapiti, F., and Archibugi, D. (1997), “Nature and impact of innovation in manufacturing industry: some evidence from the Italian innovation survey”. *Research Policy*, 26 (4/5), 521-536.

Falk, R. F. and Miller, N. B. (1992), *A Primer for Soft Modelling.* Akron, OH, University of Akron Press.

Farrell, M. A. (2000), “Developing a market-oriented learning organization”. *Australian Journal of Management*, 25 (2), 201-222.

Farrell, M. A. and Oczkowski, E. (2002), "Are market orientation and learning orientation necessary for superior organizational performance?". *Journal of Market-Focused Management*, 5, 197-217.

Farrell, M. A., Oczkowski, E., and Kharabsheh (2008), "Market orientation, learning and organizational performance in international joint ventures". *Asia Pacific Journal of Marketing and Logistics*, 20 (3), 289-308.

Faulkner, D. (Editor) (2002), *Strategy: Critical Perspectives on Business and Management.* London, Routledge.

Fayolle, A., Basso, O., and Legrain, T. (2008), "Corporate culture and values: Genesis and sources of L'Oréal's entrepreneurial orientation". *Journal of Small Business and Entrepreneurship*, 21 (2), 215-230.

Feigenbaum, A. and Karnani, A. (1991), "Output flexibility. A competitive advantage for small firms". *Strategic Management Journal*, 12, 101-114.

Field, A. (2009), *Discovering Statistics Using SPSS.* 3rd Edition, London, Sage.

Fiol, C. M. (1996), "Squeezing harder doesn't always work: continuing the search for consistency in innovation research". *Academy of Management Review*, 21 (4), 1012-1021.

Flynn, B. B., Schroeder, R. G., and Sakakibara, S. (1995), "The impact of quality management practices on performance and competitive advantage". *Decision Sciences*, 26 (5), 659-691.

Ford, D. (1985), "The management and marketing of technology" in Lamb, R. and Shrivastava, P. (eds.), *The Management and Marketing of Technology*. Greenwich, Connecticut, JAI Press.

Foss, N. J. (1997), "Evolutionary and Contractual Theories of the Firm: How do They Relate?", *Rivista Internazionale di Scienze Sociali,* 105, 309-337.

Foss, N. J., Knudsen, C., and Montgomery, C. A. (1995), "An exploration of common ground: Integrating evolutionary and strategic theories of the firm" in Montgomery, C. A. (ed.), *Resource-based and evolutionary theories of the firm: Towards a synthesis.* Norwell, MA, Kluwer, 1-18.

Frambach, R. T., Prabhu, J., and Verhallen, T. M. M. (2003), "The influence of business strategy on new product activity: the role of market orientation". *International Journal of Research in Marketing*, 20 (4), 377-397.

Frazier, G. L. and Howell, R. (1983), "Business definition and performance". *Journal of Marketing*, 47, 59-67.

Freel, M. (2006), "Patterns of Technological Innovation in Knowledge-Intensive Business Services", *Industry and Innovation;* 13 (3), 335-358.

Freeman, C. (1991), “Networks of innovators: a synthesis of research issues”. *Research Policy*, 499-514.

Fritz, W. (1996), “Market orientation and corporate success: Findings from Germany”. *European Journal of Marketing*, 30 (8), 59–74.

Gadhoum, Y. (1998), “Corporate governance and top managers: Potential sources of sustainable competitive advantage”. *Human Systems Management*, 17 (3), 205-222.

Galbraith, C. and Schendel, D. (1983), “An empirical analysis of strategy types”. *Strategic Management Journal*, Apr-Jun, 4 (2), 153-173.

Galbraith, J. R. and Nathanson, D. (1979), “The role of organizational structure and process in strategy implementation” in Schendel, D. and Hofer, C. W. (Eds.), *Strategic Management: a New View of Business Policy and Planning*. pp. 249-283, Boston, Little Brown.

Gallouj, F. and Weinstein, O. (1997), “Innovation in services”, *Research Policy*, 26, 537-556.

Galunic, D. C. and Eisenhardt, K. M. (2001), “Architectural innovation and modular corporate forms”. *Academy of Management Journal*, 44 (6), 1229-1249.

Gambardella, A. (1992), “Competitive advantages from in-house scientific research: the U.S. pharmaceutical industry in the 1980s”. *Research Policy*, 21, 391-407.

Gans, J. and Stern, S. (1997), “Incumbency and R&D incentives: licensing the gale of destruction”. *Working Paper, MIT Sloan School of Management.*

Gao, G. Y., Zhou, K. Z., and Yim, B. C. (2007), “On what should firms focus in transitional economies? A study of the contingent value of strategic orientations in China”. *International Journal of Research in Marketing*, 24, 3–15.

Garvin, D. A. (1993), “Building a learning organization”, *Harvard Business Review*, 71 (4), 78-91.

Gatignon, H. and Xuereb, J. M. (1997), “Strategic orientation of firm and new product performance”. *Journal of Marketing Research*, 34, 77–90.

Ghemawat, P. (1986), “Sustainable Advantage”. *Harvard Business Review*, 64 (5), 53-58.

Ginsberg, A. (1984), “Operationalizing organizational strategy: toward an integrative framework”. *Academy of Management Review*, 9, 548-557.

Glazer, R. and Weiss, A. M. (1993), “Marketing in turbulent environments: Decision Process and the time-sensitivity of information”. *Journal of Marketing Research*, 30, 509–521.

Glueck, W. E. (1980), *Strategic Management and Business Policy.* New York, McGraw-Hill.

Gold, A. H., Malhotra, A., and Segars, A. H. (2001), "knowledge management: An organizational capabilities perspective". *Journal of Management Information Systems*, 18 (1), 185-214.

Grant, R. (1991), "The resource-based theory of competitive advantage: implications for strategy formulation". *California Management Review*, 33 (3), Spring, 114-135.

Grant, R. (1996a), "Prospering in dynamically competitive environments: Organizational capability as knowledge integration". *Organization Science*, 7 (4), 375-387.

Grant, R. (1996b), "Toward a knowledge-based theory of the firm". *Strategic Management Journal*, 17, 123-136.

Grant, R. (1998), *Contemporary Strategy Analysis*. Malden, MA, Blackwell.

Green, K. M., Covin, J. G., and Slevin, D. P. (2008), "Exploring the relationship between strategic reactiveness and entrepreneurial orientation: The role of structure – style fit". *Journal of Business Venturing*, 23 (3), 356-383.

Green, S. B. (1991), "How many subjects does it take to do a regression analysis?". *Multivariate Behavioral Research*, 26, 499-510.

Greenley, G. E. (1995), "Market orientation and company performance: Empirical evidence from UK companies". *British Journal of Management*, 6, 1-13.

Griffy-Brown, C. and Chun, M. (2007), "Aligning business strategies and IS resources in Japanese SMEs: A resource-based view". *Journal of Global Information Technology Management*, 10 (3), 28-51.

Grinstein, A. (2008), "The relationships between market orientation and alternative strategic orientations – A meta-analysis". *European Journal of Marketing*, 42 (1/2), 115-134.

Grossman, S. and Hart, O. (1986), "The costs and benefits of ownership: a theory of vertical and lateral integration". *Journal of Political Economy*, 94, 691-719.

Gulati, R. (1995), "Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances". *Academy of Management Journal*, 38, 85-112.

Gupta, A. K. and Govindarajan, V. (1984), "Business unit strategy, managerial characteristics, and business unit effectiveness at strategy implementation". *Academy of Management Journal*, 27 (1), 25-41.

Hair, J. F., Black, B., Babin, B., Anderson, R. E., and Tatham, R. L. (2006), *Multivariate Data Analysis.* 6th Edition, New Jersey, Prentice Hall.

Hall, W. K. (1983), "Survival strategies in a hostile environment" in Hammermesh, R. G. (Ed.), *Strategic Management*. New York, NY, John Wiley & Sons.

Hambrick, D. C. (1981), "Strategic awareness within top management teams". *Strategic Management Journal*, 2, 263-279.

Hambrick, D. C. (1982), "Environmental scanning and organizational strategy". *Strategic Management Journal*, 3, 159-174.

Hambrick, D. C. (1983), "An empirical typology of mature industrial product environment". *Academy of Management Journal*, 26, 213-230.

Hambrick, D. C. (1984), "Taxonomic approaches to studying strategy: some conceptual and methodological issues". *Journal of Management*, 10, 27-43.

Hambrick, D. C. and Mason, P. A. (1984), "Upper echelons: the organization as a reflection of its top managers". *Academy of Management Review*, 9 (2), 193-206.

Hambrick, D. C., Geletkanycz, M. A., and Fredrickson, J. W. (1993), "Top executive commitment to the status quo: some tests of its determinants". *Strategic Management Journal*, 14 (6), 401-418.

Hambrick, D. C., MacMillan, I. C., and Barbosa, R. R. (1983), "Business unit strategy and changes in the product R&D budget". *Management Science*, 29 (7), 757-760.

Hamel, G. (2000), *Leading the Revolution*. Boston, MA, Harvard Business School Press.

Hamel, G. and Prahalad, C. K. (1994), *Competing for the Future*. Boston, MA, Harvard Business School Press.

Han, J. K., Kim, N., and Srivastava, R. K. (1998), "Market orientation and organizational performance: Is innovation a missing link?". *Journal of Marketing*, 62 (4), 30-45.

Hansen, G. S. and Wernerfelt, B. (1989), "Determinants of firm performance: The relative importance of economic and organizational factors". *Strategic Management Journal*, 10 (5), 399-411.

Hanvanich, S., Sivakumar, K., and Hult, G. T. M. (2006), "The relationship of learning and memory with organizational performance: The moderating role of turbulence". *Academy of Marketing Science Journal*, 34 (4), 600-612.

Harris, L. and Ogbonna, E. (2001), "The responses of front-line employees to market-oriented culture change". *European Journal of Marketing*, 34 (3/4), 318–340.

Harris, P. J. and Mongiello, M. (2001), "Key performance indicators in European hotel properties: General managers' choices and company profiles". *International Journal of Contemporary Hospitality Management*, 13 (3), 120-127.

Harrison, J. E. and St. John, C. (1998), *Strategic Management of Organizations and Stakeholders*. 2nd Edition, Cincinnati, South Western College Publishing.

Harrison-Walker, L. J. (2001), "The measurement of a market orientation and its impact on business performance". *Journal of Quality Management,* 6 (2), 139-172.

Hawes, J. M. and Crittendon, W. F. (1984), "A taxonomy of competitive retailing strategies; summary". *Strategic Management Journal,* Jul-Sep, 5 (3), 275-287.

Hayek, F. A. (1945), "The use of knowledge in society". *The American Economic Review*, 35 (4), 519-530.

Hayes, R. and Wheelwright, S. (1984), *Restoring our Competitive Edge: Competing through Manufacturing*. New York, John Wiley & Sons.

Hayes, R. H., Wheelwright, S. C. and Clark, K. B. (1988), *Dynamic Manufacturing: Creating the Learning Organization*. New York, Free Press.

Hedley, B. (1976), "A fundamental approach to strategy development". *Long Range Planning*, December, 12-24.

Henderson, B. D. (1979), *Henderson on Corporate Strategy*. Cambridge, Massachussetts, Abt. Books.

Henderson, R. M. and Cockburn, I. M. (1994), "Measuring competence? Exploring firm effects in pharmaceutical research". *Strategic Management Journal*, 15, 63-84.

Hidalgo, A. (2004), *Innovation management and the Knowledge-Driven Economy*. European Commission, Brussels-Luxembourg.

Hill, C. W. L. (1988), "Differentiation versus low cost or differentiation and low cost? A contingency framework". *Academy of Management Review*, 13 (3), 401-412.

Hills, S. B. and Sarin, S. (2001), "Understanding market-driving capability in high-technology industries: a theoretical framework for examining firm strategic orientation and strategy selection". *American Marketing Association*, *Conference Proceedings*, 12, 217-222.

Hitt, M. and Ireland, D. (1985), "Corporate distinctive competence, strategy, industry and performance". *Strategic Management Journal*, 6 (3), 273-293.

Hitt, M., Hoskisson, R. E., and Ireland, R. D. (1990), "Mergers and acquisitions and managerial commitment to innovation in M-form firms". *Strategic Management Journal*, 11 (Special), 29-47.

Hitt, M. A., Ireland, R. D., Camp, S. M., and Sexton, D. L. (2001), Guest editor's introduction to the special issue "Entrepreneurial strategies for wealth creation". *Strategic Management Journal*, 22 (6/7), 479-491.

Hitt, M. A., Ireland, R. D., and Hoskisson, R. E. (1999), *Strategic Management: Competitiveness and Globalization.* Cincinnati, OH, South-Western College Publishing.

Hoe, S. L. (2008), "Benefiting from customer and competitor knowledge – A market-based approach to organizational learning". *The Learning Organization*, 15 (3), 240-250.

Hofer, C. W. (1973), "Some preliminary research on patterns of strategic behavior". *Academy of Management Proceedings*, 46-54.

Hofer, C. W. (1975), "Toward a contingency theory of business strategy". *Academy of Management Journal*, 18, 784-810.

Hofer, C. W. and Schendel, D. (1978), *Strategy Formulation: Analytical Concepts*. St. Paul, Minnesota, West Publishing.

Holcombe, R. G. (2003), "The origins of entrepreneurial opportunities". *The Review of Austrian Economics*, 16 (1), 25-43.

Horgos, D. and Koch, A. (2008), "The internal differentiation of the KIBS sector: empirical evidence from cluster analysis". *International Journal of Services Technology and Management,* 10 (2/3/4), 190-210.

Hoskisson, R., Eden, L., Lau, C. M., and Wright, M. (2000), "Strategy in emerging economies". *Academy of Management Journal*, 43, 249-267.

Hou, J. J. (2008), "Toward a research model of market orientation and dynamic capabilities". *Social Behavior and Personality*, 36 (9), 1251-1268.

Huber, G. P. and Power, D. J. (1985), "Retrospective reports of strategic-level managers: Guidelines for increasing their accuracy". *Strategic Management Journal*, 6 (2), 171-180.

Hult, G. T. M., Hurley, R. F., and Knight, G. A. (2004), "Innovativeness: Its antecedents and impact on business performance". *Industrial Marketing Management,* 33, 429-438.

Hult, G. T. M. and Ketchen, D. J. Jr. (2001), "Does market orientation matter?: A test of the relationship between positional advantage and performance". *Strategic Management Journal*, 22 (9), 899-906.

Hult, G. T. M., Nichols, E. L. Jr., Giunipero, L. C., and Hurley, R. F. (2000), "Global organizational learning in the supply chain: a low versus high learning study". *Journal of International Marketing,* 8 (3), 61-83.

Hunt, S. D. (2002), *Foundations of Marketing Theory: Toward a General Theory of Marketing*. New York, Sharpe, Armonk.

Hunt, S. D. and Morgan, R. M. (1996), "The resource-advantage theory of competition: Dynamics, path dependencies, and evolutionary dimensions". *Journal of Marketing,* 60, 107-114.

Hurley, R. F. and Hult, G. T. (1998), "Innovation, market orientation, and organizational learning: An integration and empirical examination". *Journal of Marketing,* 62 (3), 42-54.

Hutcheson, G. and Sofroniou, N. (1999), *The Multivariate Social Scientist*. London, Sage.

Im, S., Hussain, M., and Sengupta, S. (2008), "Testing interaction effects of the dimensions of market orientation on marketing program creativity". *Journal of Business Research*, 61 (8), 859-867.

Im, S. and Workman, J. P. Jr. (2004), "Market orientation, creativity, and new product performance in high-technology firms". *Journal of Marketing*, 68, 114-132.

INE – Instituto Nacional de Estatística (2006), *Anuário Estatístico de Portugal 2005 - Statistical Yearbook of Portugal 2005*.

INE – Instituto Nacional de Estatística (2007), *Anuário Estatístico de Portugal 2006 - Statistical Yearbook of Portugal 2006*.

INE – Instituto Nacional de Estatística (2008), *Anuário Estatístico de Portugal 2007- Statistical Yearbook of Portugal 2007*.

INE – Instituto Nacional de Estatística (2009), *Anuário Estatístico de Portugal 2008- Statistical Yearbook of Portugal 2008*.

INE – Instituto Nacional de Estatística (2010), *Anuário Estatístico de Portugal 2009- Statistical Yearbook of Portugal 2009*.

Inkpen, A. (1998), "Learning and knowledge acquisition through international strategic alliances". *Academy of Management Executive*, 12 (4), 69-80.

Ireland, R. D., Hitt, M. A., Camp, S. M., and Sexton, D. L. (2001), "Integrating entrepreneurship and strategic management actions to create firm wealth". *Academy of Management Executive*, 15 (1), 49-63.

Ireland, R. D., Hitt, M. A., and Sirmon, D. G. (2003), "A model of strategic entrepreneurship: The construct and its dimensions". *Journal of Management,* 29 (6), 963-989.

Itami, H. (1986), *Mobilizing Invisible Assets*. Cambridge, MA, Harvard University Press.

Jantunen, A., Puumalainen, K., Saarenketo, S., and Kylaheiko, K. (2005), "Entrepreneurial orientation, dynamic capabilities and international performance". *Journal of International Entrepreneurship,* 3, 223-243.

Jaworski, B. J. and Kohli, A. A. (1993), "Market orientation: antecedents and consequences". *Journal of Marketing,* 57 (3), 53-70.

Jaworski, B. J., Kohli, A. A., and Sahay, A. (2000), "Market-driven versus driving markets". *Journal of Academy of Marketing Science,* 28 (1), 45-54.

Jensen, M. B., Johnson, B., Lorenz, E., and Lundvall, B. A. (2007), "Forms of knowledge and modes of innovation". *Research Policy,* 36, 680-693.

Jeong, I., Pae, J., and Zhou, D. (2006), "Antecedents and consequences of the strategic orientations in new product development: The case of Chinese manufacturers". *Industrial Marketing Management,* 35, 348-358.

Jogaratnam, G. and Tse, E. C. Y. (2006), "Entrepreneurial orientation and the structuring of organizations; Performance evidence from the Asian hotel industry". *International Journal of Contemporary Hospitality Management,* 18 (6), 454-468.

Jogaratnam, G., Tse, E. C. Y., and Olsen, M. D. (1999), "Strategic posture, environmental munificence, and performance: an empirical study of independent restaurants". *Journal of Hospitality and Tourism Research,* 23 (2), 118-138.

Johannisson, B. (1998), "Personal networks in emerging knowledge-based firms: spatial and functional patterns". *Entrepreneurship and Regional Development*, 10 (4), 297-312.

Kaiser, H. F. (1974), "An index of factorial simplicity". *Psychometrika*, 39, 31-36.

Kamien, M. and Schwartz, N. (1982), *Market Structure and Innovation*. Cambridge University Press.

Kamien, M. and Zang, I. (1998), *Meet me Halfway: Research Joint Ventures and Absorptive Capacity*. Northwest University

Kaplan, R. S. and Norton, D. P. (2004), "Measuring the strategic readiness of intangible assets". *Harvard Business Review,* 82 (2), 52-63.

Kaya, N. and Seyrek, I. H. (2005), "Performance impacts of strategic orientations: Evidence from Turkish manufacturing firms". *Journal of American Academy of Business*, 6 (1), 68-71.

Keats, B. W. and Hitt, M. (1988), "A causal model of linkages among environmental dimensions, macro-organizational characteristics, and performance". *Academy of Management Journal*, 31, 570-598.

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*, 27, 125-148.

Keh, H. T., Nguyen, T. T. M., and Ng, H. P. (2007), "The effects of entrepreneurial orientation and marketing information on the performance of SMEs". *Journal of Business Venturing*, 22 (4), 592-611.

Keskin, H. (2006), "Market orientation, learning orientation, and innovation capabilities in SMEs – An extended model". *European Journal of Innovation Management,* 9 (4), 396-417.

Kilic, C. and Dursun, T. (2007), "Antecedents and consequences of customer orientation: Do individual factors affect customer orientation?". *The Business Review,* 7 (1), 1-7.

Kim, L. and Lim, Y. (1988), "Environment, generic strategies and performance in a rapidly developing country: a taxonomic approach". *Academy of Management Journal*, 31 (4), 802-827.

Kirca, A. H., Jayachandran, S., and Bearden, W. O. (2005), "Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance". *Journal of Marketing,* 69 (2), 24-41.

Kirzner, I. M. (1997), "Entrepreneurial discovery and the competitive market process: An Austrian approach". *Journal of Economic Literature*, 35 (1), 60-85.

Kitchell, S. (1995), "Corporate culture, environmental adaptation, and innovation adoption". *Journal of the Academy of Marketing Science*, 23 (3), 195-205.

Kline, S. J. and Rosenberg, N. (1986), "An overview of innovation", p. 275-306 in Landau, R. and Rosenberg, N. eds., *The Positive Sum Strategy. Harnessing Technology for Economic Growth.* Washington D. C., National Academy Press.

Knight, F. H. (1921), *Risk, Uncertainty and Profit*. Boston, Houghton Mifflin.

Knight, G. (2000), "Entrepreneurship and marketing strategy: The SME under globalization". *Journal of International Marketing,* 8 (2), 12-32.

Knight, G. A. and Dalgic, T. (2000), "Market orientation, marketing competence, and the international performance of the firm" cited in Kropp, F., Lindsay, N. J., and Shoham, A. (2006), "Entrepreneurial, market, and learning orientations and international entrepreneurial business venture performance in South African firms". *International Marketing Review,* 23 (5), 504-523.

Knott, A. M. (2003), "Persistent heterogeneity and sustainable innovation". *Strategic Management Journal*, 24 (8), 687-702.

Koch, A. and Stahlecker, T. (2006), "Regional innovation systems and the foundation of Knowledge Intensive Business Services. A comparative Study in Bremen, Munich and Stuttgart, Germany". *European Planning Studies*, 14 (2), 123-137.

Kogut, B. and Zander, U. (1992), "Knowledge of the firm, combinative capabilities, and the replication of technology". *Organization Science,* 7, 283-301.

Kohli, A. K. and Jaworski, B. J. (1990), "Market orientation: the construct, research propositions, and managerial implications". *Journal of Marketing,* 54 (2), 1-18.

Kohli, A. K., Jaworski, B. J., and Kumar, A. (1993), "MARKOR: a measure of market orientation". *Journal of Marketing Research,* 30 (4), 467-477.

Kotabe, M. (1990), "Corporate product policy and innovative behavior of European and Japanese multinationals: an empirical investigation". *Journal of Marketing*, 54 (2), 19-33.

Kotha, S. and Nair, A. (1995), "Strategy and environment as determinants of performance: Evidence from the Japanese machine tool industry". *Strategic Management Journal*, 16 (7), 497-518.

Kotha, S. and Vadlamani, B. I. (1995), "Research notes and communications assessing generic strategies: an empirical investigation of two competing typologies in discrete manufacturing industries". *Strategic Management Journal*, 16 (2), 75-83.

Kotha, S., Dunbar, R. L. M., and Bird, A. (1995), "Strategic action generation: a comparison of emphasis placed on generic competitive methods by U.S. and Japanese managers". *Strategic Management Journal*, 16, 195-220.

Kotler, P. (2000), *Marketing Management*, Upper Saddle River, NJ, Prentice Hall.

Kreiser, P. M., Marino, L. D., and Weaver, K. M. (2002), "Assessing the psychometric properties of the entrepreneurial orientation scale: a multi-country analysis". *Entrepreneurship Theory & Practice*, 26 (4), 71-94.

Kropp, F. and Zolin, R. (2005), "Technological entrepreneurship and small business innovation research programs". *Academy of Marketing Sciences Review,* 2005 (7), in www.amsreview.org/articles.

Kropp, F., Lindsay, N. J., and Shoham, A. (2006), "Entrepreneurial, market, and learning orientations and international entrepreneurial business venture performance in South African firms". *International Marketing Review,* 23 (5), 504-523.

Lado, A., Boyd, N., and Wright, P. (1992), "A competency-based model of sustainable competitive advantage: Toward a conceptual integration". *Journal of Management*, 18 (1), 77-91.

Laforet, S. (2008), "Size, strategic and market orientation affects on innovation". *Journal of Business Research,* 61, 753-764.

Lamb, C. W. Jr., Hair, J. F., and McDaniel, C. (2000), *Marketing*, 5th edition, Cincinnati, OH, South-Western College Publishing.

Lank, E. (1997), "Leveraging invisible assets: The human factor". *Long-Range Planning*, 30 (3), 406-412.

Larsen, J. N. (2000), “Supplier-user interaction in knowledge-intensive business services: types of expertise and modes of organization” in Boden, M. and Miles, I. (eds.), *Services and the knowledge-based economy*, London and New York, Continuum.

Lattin, J., Carroll, D., and Green P. (2003), *Analyzing Multivariate Data*. Pacific Grove, CA, Brooks/Cole, Duxbury Press.

Lau, T., Man, T. W., and Chow, I. (2004), “Organizational capabilities and performance of SMEs in dynamic and stable environments”. *The International Journal of Entrepreneurship and Innovation,* 5 (4), 221-229.

Lavie, D. (2006), “The competitive advantage of interconnected firms: an extension of the resource-based view”. *Academy of Management Review*, 3, 638-658.

Lawson, B. and Samson, D. (2001) “Developing innovation capability in organizations: A dynamic capabilities approach”. *International Journal of Innovation Management,* 5 (3), 377-400.

Learned, E. P., Christensen, C. R., Andrews, K. R., and Guth, W. (1969), *Business policy*, Homewood, IL, Irwin.

Lee, C., Lee, K., and Pennings, J. M. (2001), “Internal capabilities, external networks, and performance: A study on technology-based ventures”. *Strategic Management Journal,* 22 (6/7), 615-640.

Lee, L. T. S. and Sukoco, B. M. (2007), “The effects of entrepreneurial orientation and knowledge management capability on organizational effectiveness in Taiwan: The moderating role of social capital”. *International Journal of Management,* 24 (3), 549-572.

Lee, S. M. and Peterson, S. J. (2000), “Culture, entrepreneurial orientation, and global competitiveness”. *Journal of World Business,* 35 (4), 401-416.

Lee, T. S. and Tsai, H. J. (2005), “The effects of business operation mode on market orientation, learning orientation and innovativeness”. *Industrial Management + Data Systems*, 105 (3/4), 325-348.

Lefebvre, L. A. and Lefebvre, E. (1993), “Competitive positioning and innovative efforts in SMEs”. *Small Business Economics,* 5 (4), 297-306.

Leiponen, A. (2001), *Knowledge Services in the Innovation System*. Helsinki, Taloustieto.

Leonard, D. and Sensiper, S. (1998), “The role of tacit knowledge in group innovation”. *California Management Review*, 40 (3), 112-132.

Leonard-Barton, D. (1992), “Core capabilities and core rigidities: A paradox in managing new product development”. *Strategic Management Journal*, 13, 111-125.

Levinthal, D. A. and March, J. G. (1993), "The myopia of learning". *Strategic Management Journal*, 14, 95-112.

Levitas, E. and Ndofor, H. A. (2006), "What to do with the resource-based view – A few suggestions for what ails the RBV that supporters and opponents might accept". *Journal of Management Inquiry*, 15 (2), 135-144.

Li, J. J. (2005), "The formation of managerial networks of foreign firms in China: The effects of strategic orientations". *Asia Pacific Journal of Management*, 22, 423-443.

Li, T. and Calantone, R. J. (1998), "The impact of market knowledge competence on new product advantage: conceptualization and empirical examination". *Journal of Marketing,* 62 (4), 13-29.

Li, Y., Zhao, Y., Tan, J., and Liu, Y. (2008), "Moderating effects of entrepreneurial orientation on market orientation-performance linkage: Evidence from Chinese small firms". *Journal of Small Business Management*, 46 (1), 113-133.

Liao, Z. and Cheung, M. T. (2002), "Do competitive strategies drive R&D? An empirical investigation of Japanese high-technology corporations". *Journal of High Technology Management Research,* 13 (2), 143.

Lin, C. H., Peng, C. H., and Kao, D. T. (2008), "The innovativeness effect of market orientation and learning orientation on business performance". *International Journal of Manpower*, 29 (8), 752-772.

Lincoln, Y. S. and Guba, E. G. (2000), *Paradigmatic controversies, contradictions and emerging confluences* in Denzin *et al*. (Eds.), *Handbook of qualitative research.* 2nd Edition, California, Sage.

Lings, I. N. and Greenley, G. E. (2005), "Measuring internal market orientation". *Journal of Service Research*, 7 (3), 290-305.

Lippman, S. and Rumelt, R. (1982), "Uncertain imitability: An analysis of interfirm differences in efficiency under competition". *Bell Journal of Economics*, 13, 418-438.

Liu, S., Luo, X., and Shi, Y. (2002), "Integrating customer orientation, corporate entrepreneurship, and learning orientation in organizations-in-transition: An empirical study". *International Journal of Research in Marketing*, 19, 367-382.

López, S. V. (2005), "Competitive advantage and strategy formulation". *Management Decision*, 43 (5-6), 661-669.

Lovas, B. and Ghoshal, S. (2000), "Strategy as guided evolution". *Strategic Management Journal*, 21, 875-896.

Low, D. R. Chapman, R. L., and Sloan, T. R. (2007), "Inter-relationships between innovation and market orientation in SMEs". *Management Research News*, 30 (12), 878-891.

Lukas, B. and Ferrell, O. C. (2000), "The effect of market orientation on product innovation". *Journal of the Academy of Marketing Science*, 28 (2), 239-247.

Lukas, B., Tan, J. and Hult, G. (2001), "Strategic fit in transitional economies: The case of China's electronics industry". *Journal of Management*, 27, 409-429.

Lumpkin, G. T. and Dess, G. G. (1996), "Clarifying the entrepreneurial orientation construct and linking it to performance". *Academy of Management Review*, 21 (1), 135-172.

Lumpkin, G. T. and Dess, G. G. (2001), "Linking two dimensions of entrepreneurial orientation to firm performance: the moderating role of environment and industry life cycle". *Journal of Business Venturing*, 16, 429-451.

Lumpkin, G. T. and Liechtenstein, B. B. (2005), "The role of organizational learning in the opportunity recognition process". *Entrepreneurship Theory and Practice*, 29(4), 451-472.

Lundvall, B. A. (1992), *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning.* London, Printer.

Lundvall, B. A. (1998), "Innovation as an interactive process: from user-producer interaction to the national system of innovation" in Dosi, G., Freeman, C., Nelson, R., Silverberg, G. and Soete, L. (Eds.), *Technical Change and Economic Theory*. London, New York, Pinter.

Luo, X., Sivakumar, K., and Liu, S. (2005), "Globalization, marketing resources, and performance: Evidence from China". *Journal of the Academy of Marketing Science*, 33 (1), 50-65.

Luo, X., Zhou, L., and Liu, S. (2005), "Entrepreneurial firms in the context of China's transition economy: An integrative framework and empirical examination". *Journal of the Business Research*, 58, 277-284.

Luo, Y. (2000), "Dynamic capabilities in international expansion". *Journal of World Business*, 35 (4), 355-378.

Luo, Y. and Park, S. (2001), "Strategic alignment and performance of market-seeking MNCs in China". *Strategic Management Journal*, 22, 141-155.

Lusch, R. F. and Luczniak, G. R. (1987), "The evolving marketing concept, competitive intensity and organizational performance". *Journal of the Academy of Marketing Science*, 15 (3), 1-11.

Lyon, D. W., Lumpkin, G. T., and Dess, G. G. (2000), "Enhancing entrepreneurial orientation research: operationalizing and measuring a key strategic decision making process". *Journal of Management*, 26 (5), 1055-1085.

Macedo, I. M. and Pinho, J. C. (2006), “The relationship between resource dependence and market orientation – The specific case of non-profit organizations”. *European Journal of Marketing*, 40 (5/6), 533-553.

Mahoney, J. T. (1995), “The management of resources and the resource of management”. *Journal of Business Research*, 33, 91-101.

Maidique, M. A. and Patch, P. (1982), "Corporate Strategy and Technological Policy" in Tushman, M. L. and Moore, W. L. (Eds.), *Readings in the Management of Innovation*. Marshfield, MA, Pitman, 273-285.

Maijoor, S. and Van Witteloostuijn, A. (1996), “An empirical test of the resource-based theory: Strategic regulation in the Dutch audit industry”. *Strategic Management Journal*, 17 (7), 549-569.

Makadok, R. (2001), “Toward a synthesis of the resource-based and dynamic capability views of rent creation”. *Strategic Management Journal*, 22, 387-401.

Malerba, F. and Orsenigo, L. (1997), “Technological regimes and sectoral patterns of innovative activities”. *Industrial and Corporate Change*, 6 (1), 83-117.

Mansfield, E. (1985), “How rapidly does new industrial technology leak out?”. *Journal of Industrial Economics*, 34, 217-223.

Marangoni, G. D. and Solari, S. (2003), “Dynamic capabilities and economic relations”, in J. R. Teixeira (ed.), *Proceedings of the IV International Colloquium - Globalisation, New Technologies and Economic Relations*, Universidade de Brasilia, pp.161-182. available online through http://www2.dse.unibo.it/prin/prin2003/workshop/wp0/ marangoni-solari.

Marino, L., Strandholm, K., Steensma, H. K., and Weaver, K. M. (2002), “The moderating effect of national culture on the relationship between entrepreneurial orientation and strategic alliance portfolio extensiveness”. *Entrepreneurship Theory & Practice*, 26 (4), 145-160.

Marinova, D. (2004), “Actualizing innovation effort: The impact of market knowledge diffusion in a dynamic system of competition”. *Journal of Marketing,* 68, 1-20.

Mason, E. S. (1939), “Price and production policies of large-scale enterprises”. *American Economic Review*, 29, 61-74.

Matsuno, K., Mentzer, J. T., and Ozsomer, A. (2002), “The effects of entrepreneurial proclivity and market orientation on business performance”. *Journal of Marketing,* 66 (3), 18-32.

Matusik, S. F. and Hill, C. W. (1998), “The utilization of contingent work, knowledge creation, and competitive advantage”. *Academy of Management Review*, 23 (4), 680-697.

Mauri, A. J. and Michaels, M. P. (1998), "Firm and industry effects within strategic management: An empirical examination". *Strategic Management Journal*, 19 (3), 211-219.

Mavondo, F. T., Chimhanzi, J., and Stewart, J. (2005), "Learning orientation and market orientation – Relationship with innovation, human resource practices and performance". *European Journal of Marketing*, 39 (11/12), 1235-1263.

Maxfield, S. (2008), "Reconciling corporate citizenship and competitive strategy: Insights from economic theory". *Journal of Business Ethics*, 80, 367-377.

McAulay, L., Russell, G., and Sims, J. (1997), "Tacit knowledge for competitive advantage". *Management Accounting*, 75 (11), 36-37.

McCann, J. E. (1991), "Patterns of growth, competitive technology, and financial strategies in young ventures". *Journal of Business Venturing*, 6 (3), 189-208.

McDonough, E. F. III, Zach, M., Lin, H., and Berdrow, I. (2008), "Integrating innovation style and knowledge into strategy". *MIT Sloan Management Review*, 50 (1), 53-58.

McDougall, P. P., Covin, J. G., Robinson, R. B. Jr. and Herron, L. (1994), "The effects of industry growth and strategic breadth on new venture performance and strategy content". *Strategic Management Journal*, 15 (7), 537-554.

McEvily, S. K. and Chakravarthy, B. (2002), "The persistence of knowledge-based advantage: an empirical test for product performance and technological knowledge". *Strategic Management Journal*, 23 (4), 285-305.

McGahan, A. M. and Porter, M. E. (1997), "How much does industry matter, really?". *Strategic Management Journal*, 18, Summer Special Issue, 15-30.

McGrath, R. G. and MacMillan, I. (2000), *The Entrepreneurial Mindset.* Boston, Harvard Business School Press.

McGuiness, T. and Morgan, R. E. (2000), "Strategy, dynamic capabilities and complex science: management rhetoric vs. reality". *Strategic Change*, 9 (4), 209-220.

McGuiness, T. and Morgan, R. E. (2005), "The effect of market and learning orientation on strategy dynamics – The contributing effect of organizational change capability". *European Journal of Marketing*, 39 (11/12), 1306-1326.

McKee, D. O., Varadarajan, P. R., and Pride, W. M. (1989), "Strategic adaptability and firm performance: a market-contingent perspective", *Journal of Marketing*, 53 (3), 21-35.

McWilliams, A., Van Fleet, D., and Wright, P. (2001), "Strategic management of human resources for global competitive advantage". *Journal of Business Strategies*, 18, 1-24.

Menard, S. (1995), "Applied Logistic Regression Analysis". *Sage university paper series on quantitative applications in the social sciences*, 07-106, Thousand Oaks, CA, Sage, cited in Field (2009).

Menguc, B. and Auh, S. (2006), "Creating a firm-level dynamic capability through capitalizing on market orientation and innovativeness". *Academy of Marketing Science Journal*, 34 (1), 63-73.

Menon, A. and Varadarajan, R. P. (1992), "A model of marketing knowledge use within firms". *Journal of Marketing*, 26 (4), 53-71.

Miles, I. (1999), "Services and Foresight". *Service Industries Journal*, 19 (2), 1-27.

Miles, I. (2001), "Services innovation: A reconfiguration of innovation studies". *PREST Discussion Paper Series – The University of Manchester*, 1-39.

Miles, I. (2008), "Patterns of innovation in service industries". *IBM Systems Journal*, 47 (1), 115-128.

Miles, I., Kastrinos, N., Flanagan, K., Bilderbeek, R., den Hertog, P., Huntink, W., and Bouman, M. (1995), *Knowledge-Intensive Business Services: Users, Carriers and Sources of Innovation*, European Innovation Monitoring System, Luxembourg, EIMS Publication No. 15.

Miles, J. N. V. and Shevlin, M. (2001), *Applying Regression and Correlation: A Guide for Students and Researchers*. London, Sage.

Miles, M. P. and Arnold, D. R. (1991), "The relationship between marketing orientation and entrepreneurial orientation". *Entrepreneurship Theory & Practice*, 15 (4), 49-65.

Miles, R. E. and Snow, C. (1978), *Organizational Strategy, Structure and Process*. New York, McGraw-Hill.

Miles, R. E. and Snow, C. (1986), "Organizations: New Concepts for New Forms", *California Management Review*, *28 (3), 62-73.*

Miles, R. H. (1982), *Coffin Nails and Corporate Strategies.* Englewood Cliffs, New Jersey, Prentice-Hall.

Miller, A. and Dess, G. G. (1993), "Assessing Porter's model (1980) in terms of its generalizability, accuracy and simplicity". *Journal of Management Studies*, 30 (4), 553-585.

Miller, D. (1983), "The correlates of entrepreneurship in three types of firms". *Management Science*, 29, 770-791.

Miller, D. (1988), "Relating Porter's business strategies to environment and structure: Analysis and performance implications". *Academy of Management Journal,* 31 (2), 280-308.

Miller, D. and Friesen, P. H. (1982), "Innovation in Conservative and Entrepreneurial Firms: Two Models of Strategic Momentum", *Strategic Management Journal,* 3 (1), 1-25.

Miller, D. and Friesen, P. H. (1983), "Strategy-making and environment: The third link". *Strategic Management Journal*, 4 (3), 221-235.

Miller, D. and Friesen, P. H. (1986), "Porter's generic strategies and performance: an empirical examination with American data". *Organization Studies*, 7, 37-55.

Miller, D. and Shamsie, J. (1996), "The resource-based view of the firm in two environments: the Hollywood film studios from 1936 to 1965". *Academy of Management Journal*, 39, 519-543.

Milosevic, D. Z. and Srivannaboon, S. (2006), "A theoretical framework for aligning project management with business strategy". *Project Management Journal*, 37 (3), 98-110.

Mintzberg, H. (1973), "Strategy-making in three modes". *California Management Review*, 16 (2), 44-53.

Mintzberg, H. (1988), "Generic strategies: toward a comprehensive framework", in Lamb, R., Shrivastava, P. (Eds.), *Advances in Strategic Management*, Greenwich, CT, JAI Press, Vol. 5, 1-67.

Mintzberg, H. and Lampel, J. (1999), "Reflecting on the strategy process", *Sloan Management Review*, Spring, 21-30.

Mintzberg, H., Ahlstrand, B., and Lampel, J. (1998). *Strategy Safari - A Guided Tour Through The Wilds of Strategic Management*. New York, Free Press.

Mintzberg, H., Lampel, J. B., Quinn, J. B., and Ghoshal, S. (2002), *The Strategy Process: Concepts, Contexts, Cases*, 4th Edition, New Jersey, Prentice Hall.

Mody, A. (1993), "Learning through alliances". *Journal of Economic Behavior and Organisation*, 151-170.

Mone, M. A., McKinley, W., and Barker, V. L. III (1998), "Organizational decline and innovation: a contingency framework". *Academy of Management Review*, 23 (1), 15-132.

Morgan, N. A., Vorhies, D. W., and Mason, C. H. (2009), "Market orientation, marketing capabilities, and firm performance". *Strategic Management Journal*, 30, 909-920.

Morgan, R. E. and Strong, C. A. (1998), "Market orientation and dimensions of strategic orientation". *European Journal of Marketing*, 32 (11/12), 1051-1073.

Morris, M. H., Coombes, S., Schindehutte, M., and Allen, J. (2007), "Antecedents and outcomes of entrepreneurial and market orientations in a non-profit context: Theoretical and empirical insights". *Journal of Leadership and Organizational Studies,* 13 (4), 12-39.

Mostafa, R. H. A., Wheeler, C., and Jones, M. (2006), "Entrepreneurial orientation, commitment to the Internet and export performance in small and medium sized exporting firms". *Journal of International Entrepreneurship,* 3, 291-302.

Moustaghfir, K. (2008), "The dynamics of knowledge assets and their link with firm performance". *Measuring Business Excellence*, 12 (2), 10-24.

Mowery, D. and Rosenberg, N. (1989), *Technology and the Pursuit of Economic Growth*. Cambridge University Press

Muller, E. and Doloreux, D. (2009), "What we should know about knowledge-intensive business services". *Technology in Society*, 31, 64-72.

Muller, E. and Zenker, A. (2001), "Business services as actors of knowledge transformation: the role of KIBS in regional and national innovation systems". *Research Policy*, 30 (9), 1501-1516.

Murphy, G. B. and Callaway, S. K. (2004), "Doing well and happy about it? Explaining variance in entrepreneurs' stated satisfaction with performance". *New England Journal of Entrepreneurship*, 7, 15-26.

Murphy, G. B., Trailer, J. W., and Hill, R. C. (1996), "Measuring performance in entrepreneurship research". *Journal of Business Research*, 36, 15-23.

Murray, A. I. (1988), "A contingency view of Porter's 'generic strategies'". *Academy of Management Review*, 13 (3), 390-400.

Murray, J. A. (1984), "A concept of entrepreneurial strategy". *Strategic Management Journal*, 5 (1), 1-13.

Myers, A. and Hansen, C. (2006), *Experimental Psychology.* 6th Edition, Belmont, Thomson Wadsworth.

Myers, R. (1990), *Classical and Modern Regression with Applications*. 2nd Edition, Boston, MA, Duxbury.

Nahlinder, J. and Hommen, L. (2002), "Employment and innovation in services: knowledge-intensive business services in Sweden". Department of technology and social change, Linkoping University, Sweden.

Naldi, L., Nordqvist, M., Sjoberg, K., and Wiklund, J. (2007), "Entrepreneurial orientation, risk taking, and performance in family firms". *Family Business Review,* 20 (1), 33-47.

Naman, J. and Slevin, D. (1993), "Entrepreneurship and the concept of fit: A model and empirical tests". *Strategic Management Journal*, 14, 137–153.

Narver, J. C., Jacobson, R. L., and Slater, S. F. (1999), “Market orientation and business performance: An analysis of panel data”. in , R. (ed.), *Developing a Market Orientation,* Thousand Oaks, CA, Sage Publications, 195-216.

Narver, J. C. and Slater, S. F. (1990), “The effect of a market orientation on business profitability”. *Journal of Marketing,* 54 (4), 20-35.

Narver, J. C., Slater, S. F., and MacLachlan, D. (2004), “Responsive and proactive market orientation and new product success”. *Journal of Product Innovation Management,* 21 (5), 334-344.

Neely, A. (1998), *Measuring Business Performance – Why, what and how,* The Economist Newspaper Ltd.

Nelson, R. (1991), “Why do firms differ, and how does it matter?”. *Strategic Management Journal*, Winter Special Issue, 12, 61-74.

Nelson, R. (1994), “Routines” in *The Elgar Companion to Institutional and Evolutionary Economics*, vol. 2, edited by G. M. Hodgson, W. J. Samuels and M. R. Tool, pp. 249-253. Aldershot, Hants, England, Brookfield, VT, USA, Edward Elgar.

Nelson, R. and Winter, S. (1982), *An Evolutionary Theory of Economic Change*. Cambridge, Harvard University Press.

Neuman, W. L. (2000), *Social research methods: Qualitative and quantitative approaches.* 4th Edition, Boston, Allyn and Bacon.

Nevis, E. C., DiBella, A. J., and Gould, J. M. (1995), “Understanding organizations as learning systems”. *Sloan Management Review*, 36 (2), 73-85.

Nielsen, A. P. (2006), “Understanding dynamic capabilities through knowledge management”. *Journal of knowledge Management*, 10 (4), 59-71.

Noble, C., Sinha, R., and Kumar, A. (2002), “Market orientation and alternative strategic orientations: A longitudinal assessment of performance implications”. *Journal of Marketing,* 66 (4), 25-39.

Noda, T. and Bower, J. L. (1996), “Strategy making as iterated processes of resource allocation”. *Strategic Management Journal*, 17, 159–192.

Nonaka, I. (1991), “The knowledge-creating company”. *Harvard Business Review,* 69, 96-104.

Nonaka, I. and Takeuchi, H. (1995), *The Knowledge-creating Company: How Japanese Companies Create the Dynamics of Innovation.* Oxford, Oxford University Press.

Nonaka, I., Toyama, R., and Konno, N. (2000), “SECI, *ba* and leadership: a unified model of dynamic knowledge creation”. *Long Range Planning*, 33 (1), 5-34.

Nonaka, I., Umemoto, K., and Senoo, D. (1996), "From information processing to knowledge creation". *Technology in Society*, 18 (2), 203-218.

Nunnally, J. C. (1978), *Psychometric Theory.* 2nd Edition, New York, McGraw-Hill.

Nystrom, P. C. and Starbuck, W. (1984), "To Avoid Organizational Crisis, Unlearn". *Organizational Dynamics*, 13, 53-65.

O'Brien, J. P. (2003), "The capital structure implications of pursuing a strategy of innovation". *Strategic Management Journal*, 24 (5), 415-432.

OECD (2005), *The Measurement of Scientific and Technological Activities - OECD proposed guidelines for collecting and interpreting technological innovation data. "Oslo Manual",* 3rd Edition, Organisation for Economic Co-operation and Development, Paris.

OECD (2009), *OECD Science, Technology and Industry Scoreboard 2009*, Organisation for Economic Co-operation and Development, Paris.

Oktemgil, M. and Greenley, G. (1996), "Consequences of high and low adaptive capability in UK companies". *European Journal of Marketing*, 31 (7), 445-466.

Olavarrieta, S. and Friedmann, R. (2008), "Market orientation, knowledge-related resources and firm performance". *Journal of Business Research*, 61, 623-630.

Olsen, M. D., West, J. J., and Tse, E. C. (1998), *Strategic Management in the Hospitality Industry*. New York, Wiley.

Olson, S. F. and Currie, H. M. (1992), "Female entrepreneurs: personal value systems and business strategies in a male-dominated industry". *Journal of Small Business Management*, 30 (1), 49-58.

Oster, A. (1990), *Modern Competitive Analysis*. New York, Oxford University Press.

Oviatt, B. M. and McDougall, P. P. (2005), "Defining international entrepreneurship and modelling the speed of internationalization". *Entrepreneurship Theory & Practice*, 29 (5), 537-553.

Oxley, J. (1997), "Appropriability hazards and governance in strategic alliances: a transaction cost approach". *Journal of Law, Economics and Organisation*, 387-409.

Parida, V. (2007), "ICT and dynamic capabilities: an empirical study of small Swedish firms". Proceedings of the 2nd Nordic Innovation Research Conference, 3rd – 4th December 2007, Lulea, Sweden.

Parnell, J. A. (1997), "New evidence in the generic strategy and business performance debate: a research note". *British Journal of Management*, 8, 175-181.

Parnell, J. A. (2006), "Generic strategies after two decades: a reconceptualization of competitive strategy". *Management Decision*, 44 (8), 1139-1154.

Parnell, J. A. and Hershey, L. (2005), “The strategy-performance relationship: the blessing and curse of the combination strategy”. *International Journal of Commerce & Management*, 15 (1), 17-33.

Parnell, J. A. and Wright, P. (1993), “Generic strategy and performance: an empirical test of the Miles and Snow typology”. *British Journal of Management*, 4, 29-36.

Patel, P. and Pavitt, K. (1994), “National innovation systems: why they are important and how they might be measured and compared”. *Economics of Innovation and New Technology*, 3, 77-95.

Patton, J. R. (2007), “Metrics for knowledge-based project organizations”. *S.A.M. Advanced Management Journal*, 72 (1), 33-43.

Pearce, J., Robbins, K. D., and Robinson, R. B. (1987), “The impact of grand strategy and planning formality on financial performance”. *Strategic Management Journal*, 8 (2), 125-134.

Pelham, A. M. (2000), “Market orientation and other potential influences on culture on performance in small and medium-sized manufacturing firms”. *Journal of Small Business Management*, 38 (1), 48-67.

Pelham, A. M. and Wilson, D. T. (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*, 24 (1), 27-43.

Penrose, E. (1959), *The Theory of the Growth of the Firm.* New York, Sharpe.

Peteraf, M. (1993), “The cornerstones of competitive advantages: a resource-based view”. *Strategic Management Journal*, 14, 179-191.

Peterson, R. A. (1995), “Une méta-analyse du coefficient alpha de Cronbach”. *Recherche et Applications en Marketing*, 10 (2), 75-88.

Pettigrew, A. M. (1977), “Strategy formulation as a political process”. *International Studies of Management and Organization,* 7, 78-87.

Pfeffer, J. and Veiga, J. (1999), “Putting people first for organizational success”. *The Academy of Management Executives*, 13 (2), 37-48

Phillips, L. W., Chang, D., and Buzzell, R. D. (1983), “Product quality, cost position and business performance: a test of some key hypotheses”. *Journal of Marketing*, 47 (2), 26-43.

Pinchot, G. III (1985), *Intrapreneuring: Why You Don’t Have to Leave the Corporation to Become Entrepreneur*, New York, NY, Harper and Row Publishers.

Pisano, G. P. (1990), “The R&D boundaries of the firm: an empirical analysis”. *Administrative Science Quarterly*, 35, 153-176.

Pisano, G. P. (1997), *The Development Factory.* Boston, HBS Press.

Pleshko, L. (2006), "The influence of growth strategy on profits in credit unions". *Journal of Commercial Banking and Finance,* 5 (1/2), 1-12.

Pleshko, L. and Nickerson, I. (2008), "Strategic orientation, organizational structure, and the associated effects on performance in industrial firms". *Academy of Strategic Management Journal*, 7, 95-110.

Poell, R. F. and Van der Krogt, F. J. (2003), "Learning strategies of workers in the knowledge-creating company". *Human Resource Development International,* 6 (3), 387-403.

Porter, M. E. (1980), *Competitive Strategy.* New York, Free Press.

Porter, M. E. (1981), "The contributions of industrial organization to strategic management". *Academy of Management Review*, 6, 609-620.

Porter, M. E. (1983), "The technological dimension of competitive strategy" in R. S. Rosenbloom (Ed.), *Research on Technological Innovation, Management and Policy,* I, 1-33l.

Porter, M. E. (1985), *Competitive Advantage*. New York, Free Press.

Porter, M. E. (1990), *The Competitive Advantage*. New York, Free Press.

Porter, M. E. (1996), "What is strategy?". *Harvard Business Review*, Nov/Dec, 61-78.

Post, H. (1997), "Building a strategy on competencies". *Long Range Planning*, 30 (5), 733-740.

Powell, T. C. (1993), "Administrative skill as competitive advantage: Extending Porter's analytical framework". *Canadian Journal of Administrative Sciences*, 10 (2), 141-153.

Powell, T. C. (2001), "Competitive advantage: Logical and philosophical considerations". *Strategic Management Journal*, 22 (9), 875-888.

Prahalad, C. K. and Hamel, G. (1990), "The core competence of the corporation". *Harvard Business Review*, 68 (3), 79-92.

Prescott, E. and Visscher, M. (1980), "Organizational capital". *Journal of Political Economy*, 88 (3), 446-461.

Priem, R. L. and Butler, J. E. (2001), "Is the resource-based "view" a useful perspective for strategic management research?". *Academy of Management Review*, 26, 22-40.

Prieto, I. M. and Easterby-Smith, M. (2006), "Dynamic capabilities and the role of organizational knowledge: an exploration". *European Journal of Information Systems*, 15, 500-510.

Proff, H. (2000), "Hybrid strategies as a strategic challenge – the case of the german automotive industry". *Omega*, 28 (5), 541.

Pulendran, S., Speed, R., and Widing, R. E. II (2000), "The antecedents and consequences of market orientation in Australia". *Australian Journal of Management*, 25 (2), 119-143.

Qu, R. (2009), "The impact of market orientation and corporate social responsibility on firm performance". *Asia Pacific Journal of Marketing and Logistics*, 21 (4), 570-582.

Radnor, M. (1991), "Technology acquisition strategies and processes: a reconsideration of the 'make versus buy' decision". *International Journal of Technology Management*, 113-135.

Rajagopalan, N. (1997), "Strategic orientations, incentive plan adoptions, and firm performance". *Strategic Management Journal*, 18 (10), 761-785.

Ramaswamy, K., Thomas, A. S., and Litschert, R. J. (1994), "Organizational performance in a regulated environment: the role of strategic orientation". *Strategic Management Journal*, 15 (1), 63-74.

Ramaswamy, S. N., Srivastava, R. K., and Bhargava, M. (2009), "Market-based capabilities and financial performance of firms: insights into marketing's contribution to firm value". *Journal of the Academy of Marketing Science*, 37, 97-116.

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*, 25, 23-37.

Reed, R. and DeFillippi, R. J. (1990), "Causal ambiguity, barriers to imitation, and sustainable competitive advantage". *Academy of Management Review*, 15 (1), 88-102.

Reitsperger, W. D. (1993), "Product quality and cost leadership: compatible strategies?". *Management International Review*, 33 (1), 7-22.

Reuber, A. and Fischer, E. (1997), "The influence of the management team's international experience on the internationalization behaviors of SMEs". *Journal* of International Business Studies, 28 (4), 807–825.

Roberts, P. (1999), "Product innovation, product-market competition, and persistent profitability in the U.S. pharmaceutical industry". *Strategic Management Journal*, 20 (7), 655-670.

Robinson, R. B. and Pearce, J. A. (1988), "Planned patterns of strategic behavior and their relationship to business unit performance". *Strategic Management Journal*, 9 (1), 43-60.

Rogers, E. M. (1983), *Diffusion of Innovations.* 3rd edition, New York, The Free Press.

Roquebert, J. A., Phillips, R. L., and Westfall, P. A. (1996), "Markets versus management: What 'drives' profitability?". *Strategic Management Journal*, 17 (8), 653-664.

Rosenberg, N. (1982), *Inside the Black Box: Technology and Economics*. New York, Cambridge University Press.

Rouse, M. and Daellenbach, U. (1999), "Rethinking research methods for the resource-based perspective: Isolating sources of sustainable competitive advantage". *Strategic Management Journal*, 20 (5), 487-494.

Ruekert, R. (1992), "Developing a market orientation: An organizational strategy perspective". *International Journal of Research in Marketing*, 9 (3), 225-245.

Ruekert, R., Walker Jr., O. W., and Roering, K. (1985), "The organization of marketing activities: A contingency theory of structural performance". *Journal of Marketing*, 49, 13-25.

Rumelt, R. P. (1984), "Towards a strategic theory of the firm" in R. B. Lamb (ed.), *Competitive Strategic Management*. Englewood Cliffs, New Jersey, Prentice-Hall.

Rumelt, R. P. (1991), "How much does industry matter?". *Strategic Management Journal*, 12 (3), 167-185.

Runyan, R., Droge, C., and Swinney, J. (2008), "Entrepreneurial orientation versus small business orientation: What are their relationships to firm performance?". *Journal of Small Business Management*, 46 (4), 567-588.

Ruokonen, M. and Saarenketo, S. (2009), "The strategic orientations of rapidly internationalizing software companies". *European Business Review*, 21 (1), 17-41.

Sackmann, S. A. (1991), *Cultural Knowledge in Organizations*. Newbury Park, CA, Sage.

Sadler-Smith, E., Hampson, Y., Chaston, I., and Badger, B. (2003), "Managerial behavior, entrepreneurial style, and small firm performance". *Journal of Small Business Management*, 41 (1), 47-67.

Salancik, G. R. and Pfeffer, J. (1977), "An examination of need-satisfaction models of job attitudes". *Administrative Science Quarterly*, 22, 427-456.

Salavou, H., Baltas, G., and Lioukas, S. (2004), "Organizational innovation in SMEs - The importance of strategic orientation and competitive structure". *European Journal of Marketing*, 38 (9/10), 1091-1112.

Sathe, V. (2003), *Corporate Entrepreneurship: Top Managers and New Business Creation.* Cambridge, Cambridge University Press.

Schendel, D. and Hofer, C., eds. (1979), *Strategic Management: A New View of Business Policy and Planning.* Boston, MA, Little-Brown.

Scherer, F. (1965), "Firm size, market structure, opportunity and the output of patented innovations". *American Economic Review*, 55, 1097-1125.

Schindehutte, M., Morris, M. H., and Kocak, A. (2008), "Understanding market-driven behavior: The role of entrepreneurship". *Journal of Small Business Management*, 46 (1), 4-26.

Schmookler, J. (1962), "Economic sources of inventive activity". *Journal of Economic History*, 22, 1-10.

Schoollhammer, H. (1982), "Internal corporate entrepreneurship". In Kent, C. A., Sexton, D. L. and Vesper, K. H. (eds.), *Encyclopedia of entrepreneurship*. Englewood Cliffs, NJ, Prentice Hall, 209–223.

Schumpeter, J. (1934), *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle*. Cambridge, Harvard University Press.

Schumpeter, J. (1942), *Capitalism, Socialism and Democracy*. New York, Harper.

Schumpeter, J. (1954), *History of Economic Analysis*. New York, Oxford University Press.

Schwartz, H. and Davis, S. M. (1986), "Matching corporate culture and business strategy" in Foulkes, F. K. (eds.), *Strategic Human Resources*. Englewood Cliffs, New Jersey, Prentice-Hall.

Selznick, P. (1957), *Leadership in Administration: A Sociological Interpretation.* New York, NY, Harper and Row.

Senge, P. M. (1990), *The Fifth Discipline*. New York, Bantam Doubleday.

Shane, S. and Venkataraman, S. (2000), "The promise of entrepreneurship as a field of research". *Academy of Management Review*, 25 (1), 217-226.

Shapiro, C. (1989), "The theory of business strategy". *RAND Journal of Economics*, 20 (1), 125-137.

Shaw, R. W. (1982), "Product proliferation in characteristics space: the UK fertilizer industry". *Journal of Industrial Economics*, 31, 69-91.

Shoham, A., Rose, G. M., and Kropp, F. (2005), "Market orientation and performance: a meta-analysis", *Marketing Intelligence & Planning*, 23 (4/5), 435-454.

Shortell, S. M. and Zajac, E. J. (1990), "Perceptual and archival measures of Miles and Snow's strategic types: a comprehensive assessment of reliability and validity". *Academy of Management Journal*, 33 (4), 817-832.

Simmie, J. and Strambach, S. (2006), “The contribution of KIBS to innovation in cities: an evolutionary and institutional perspective”. *Journal of Knowledge Management*, 10 (5), 26-40.

Sinkovics, R. R. and Roath, A. S. (2004), “Strategic orientation, capabilities, and performance in manufacturer – 3PL relationships”. *Journal of Business Logistics*, 25 (2), 43-64.

Sinkula, J. M. (1994), “Market information processing and organizational learning”. *Journal of Marketing*, 58 (1), 35-45.

Sinkula, J. M., Baker, W., and Noordewier, T. G. (1997), “A framework for market-based organizational learning: Linking values, knowledge and behavior”. *Journal of the Academy of Marketing Science*, 25 (4), 305-318.

Skinner, W. (1984), “Operations technology: blind spot in strategic management”. *Interfaces,* January-February, 116-125.

Slater, S. F. and Narver, J. C. (1993), “Product-market strategy and performance: an analysis of the Miles and Snow strategy types”. *European Journal of Marketing*, 27, 33-51.

Slater, S. F. and Narver, J. C. (1994), “Does competitive environment moderate the market orientation performance relationship?”. *Journal of Marketing*, 58, 46-55.

Slater, S. F. and Narver, J. C. (1995), “Market orientation and the learning organization”. *Journal of Marketing*, 59 (3), 63-74.

Slater, S. F. and Narver, J. C. (1999), “Market-oriented is more than being customer-led”. *Strategic Management Journal*, 20 (12), 1165-1168.

Slater, S. F. and Narver, J. C. (2000), “The positive effect of a market orientation on business profitability: A balanced replication”. *Journal of Business Research*, 48 (1), 69-73.

Slater, S. F. and Olson, E. M. (2000), “Strategy type and performance: The influence of sales force management”. *Strategic Management Journal*, 21 (2), 813-829.

Slater, S. F., Olson, E. M., and Hult, G. T. (2006), “The moderating influence of strategic orientation on the strategy formation capability-performance relationship”. *Strategic Management Journal*, 27 (12), 1221-1231.

Smart, D. T. and Conant, J. S. (1994), “Entrepreneurial orientation, distinctive marketing competencies and organizational performance”. *Journal of Applied Business Research,* 10 (3), 28-39.

Smedlund, A. and Toivonen, M. (2007), “The role of KIBS in the IC development of regional clusters”. *Journal of Intellectual Capital*, 8 (1), 159-170.

Snow, C. C. and Hrebiniak, L. G. (1980), "Strategy, distinctive competence and organizational performance". *Administrative Science Quarterly*, 25 (2), 317-336.

Snow, C. C. and Miles, R. E. (1983), "The role of strategy in the development of a general theory of organizations" in R. Lab (Ed.), *Advances in Strategic Management*, vol. 2, pp. 231-259, Greenwich, CT, JAI Press.

Soete, L. and Miozzo, M. (1990), *Trade and Development in services: a technological perspective*. Maastricht, Merit.

Spanos, Y. and Lioukas, S. (2001), "An examination into the causal logic of rent generation: Contrasting Porter's competitive strategy framework and the resource-based perspective". *Strategic Management Journal*, 22 (10), 907-934.

Spence, M. (1984), "Cost reduction, competition and industry performance". *Econometrica*, 101-121.

Spender, J. C. and Grant, R. M. (1996), "Knowledge and the firm: overview". *Strategic Management Journal*, 17, 5-9.

Starbuck, W. (1992), "Learning by knowledge-intensive firms". *Journal of Management Studies*, 29 (6), 713-740.

Starbuck, W. (1993), "Keeping a butterfly and an elephant in a house of cards: The elements of exceptional success". *Journal of Management Studies*, 30 (6), 885-921.

Stata, R. (1989), "Organizational learning – the key to management innovation". *Sloan Management Review*, 30 (3), 63-74.

Stevenson, H. H. (1983), "A perspective on entrepreneurship". *Harvard Business School Working Paper,* 9-384-131.

Stone, R. W. and Good, D. J. (2004), "Measuring entrepreneurial orientation in an individualized technology context". *Journal of Business and Entrepreneurship*, 16 (2), 1-22.

Stonich, P. J. (1982), *Implementing Strategy: Making Strategy Happen*. Cambridge, Massachusetts, Ballenger.

Storey, J. (2000), "The management of innovation problem". *International Journal of Innovation Management*, 4 (3), 347-369.

Strambach, S. (2002), "Change in the innovation process: new knowledge production and competitive cities – the case of Stuttgart". *European Planning Studies*, 10 (2), 214-231.

Stremersch, S. and Tellis, G. J. (2004), "Understanding and managing international growth of new products". *International Journal of Research in Marketing*, 21 (4), 421.

Suh, T. (2005), "Exploring a Global Pattern of E-Business Activities and Strategic Orientation", *Journal of American Academy of Business,* 6 (1), 309-314.

Sundbo, J. and Gallouj, F. (2000), "Innovation as a loosely coupled system in services". *International Journal of Services Technology and Management*, 1 (1), 15-36.

Swierczeck, F. W. and Ha, T. T. (2003), "Entrepreneurial orientation, uncertainty avoidance and firm performance". *The International Journal of Entrepreneurship and Innovation,* 4 (1), 46-58.

Symeonidis, G. (1996), "Innovation, firm size and market structure: Schumpeterian hypothesis and some new themes". *OECD Economic Studies,* 27, 35-70.

Tampoe, M. (1994), "Exploiting the core competencies of your organization". *Long Range Planning*, 27 (4), 66-77.

Tan, J. and Tan, D. (2005), "Environment-strategy co-evolution and co-alignment: A staged model of Chinese SOEs under transition". *Strategic Management Journal*, 26, 141-157.

Tang, J., Tang, Z., Zhang, Y., and Li, Q. (2007), "The impact of entrepreneurial orientation and ownership type on firm performance in the emerging region of China". *Journal of Developmental Entrepreneurship*, 12 (4), 383-397.

Teece, D. J. (1976), *The Multinational Corporation and the Resource Cost of International Technology Transfer*. Cambridge, Ballinger.

Teece, D. J. (1982), "A Behavioral Analysis of OPEC: An Economic and Political Synthesis". *Journal of Business Administration,* 13 (1 & 2), 127-159.

Teece, D. J. (1984), "Economic analysis and strategic management". *California Management Review*, 26 (3), 87-110.

Teece, D. J. (1986a), "Transaction cost economics and the multinational entreprise". *Journal of Economic Behavior and Organization*, 7, 21-45.

Teece, D. J. (1986b), "Profiting from technological innovation". *Research Policy*, 15 (6), 285-305.

Teece, D. J. (1988), "Technological change and the nature of the firm" in G. Dosi, C. Freeman, R. Nelson, G. Silverberg and L. Soete (Eds.), *Technical Change and Economic Theory*, pp. 256-281, New York, Pinter Publishers.

Teece, D. J. (1997), ed., *The Competitive Challenge. Strategies for Industrial Innovation and Renewal*. Harper & Row.

Teece, D. J. (1998), "Capturing value from knowledge assets: The new economy, markets for know-how, and intangible assets". *California Management Review*, 40 (3), 55-79.

Teece, D. J. (2000), *Managing Intellectual Capital: Organizational, Strategic, and Policy Dimensions*. Oxford, Oxford University Press.

Teece, D. J. (2007), “Explicating dynamic capabilities: The nature and microfoundation of (sustainable) enterprise performance”. *Strategic Management Journal,* 28 (13), 1319.

Teece, D. J. and Pisano, G. (1994), “The dynamic capabilities of firms: an introduction”. *Industrial and Corporate Change*, 3 (3), 537-556.

Teece, D. J., Pisano, G., and Shuen, A. (1997), “Dynamic capabilities and strategic management”. *Strategic Management Journal*, 18 (7), 509-533.

Tether, B. S. (2005), “Do services innovate (differently)? Insights from the European Innobarometer survey”. *Industry and Innovation*, 12 (2), 153-184.

Tether, B. S. and Hipp, C. (2002), “Knowledge intensive, technical and other services: patterns of competitiveness and innovation compared”. *Technology Analysis and Strategic Management*, 14 (2), 163-182.

Thomas, A. S., Litschert, R. J., and Ramaswamy, K. (1991), “The performance impact of strategy-manager coalignment: an empirical examination”. *Strategic Management Journal*, 12 (7), 509-522.

Todorovic, Z. W. and Ma, J. (2008), “Entrepreneurial and market orientation relationship to performance – The multicultural perspective”. *Journal of Enterprising Communities: People and Places in the Global Economy*, 2 (1), 21-36.

Todtling, F., Lehner, P., and Trippl, M. (2006), “Innovation in knowledge intensive industries: the nature and geography of knowledge links”. *European Planning Studies*, 14 (8), 1035-1058.

Toivonen, M. (2004), “Foresight in services: possibilities and special challenges”. *The service industries journal*, 24 (1), 79-98.

Toivonen, M. (2006), “Future prospects of knowledge-intensive business services (KIBS) and implications to regional economies”. *ICFAI Journal of Knowledge Management*, 4 (3).

Toivonen, M. (2007), “Innovation policy in services: The development of knowledge-intensive business services (KIBS) in Finland”. *Innovation: management, policy and practice* , 9, 249-261.

Tourangeau, R., Rips, L. J., and Rasinski, K. (2000), *The Psychology of Survey Response.* Cambridge, U.K., Cambridge University Press.

Tushman, M. L. and Anderson, P. (1986), “Technological discontinuities and organizational environments”. *Administrative Science Quarterly*, 31, 439-465.

Ulset, S. (1996), "R&D outsourcing and contractual governance: an empirical study of commercial R&D projects". *Journal of Economic Behavior and Organization*, 30, 63-82.

Utterback, J. M. (1994), *Mastering the Dynamics of Innovation.* Cambridge, MA, Harvard Business School Press.

Utterback, J. M. and Abernathy, W. J. (1975), "A dynamic model of process and product innovation". *Omega*, 3, 639-656.

Varadarajan, P. R. (1986), "Product diversity and firm performance: An empirical investigation". *Journal of Marketing*, 50, 43-57.

Veliyath, R. (2000), "Firm capabilities, business strategies, customer preferences and hypercompetitive arenas: the sustainability of competitive advantages with implications for firm competitiveness". *Competitiveness Review*, 10 (1), 56-83.

Venkatraman, N. (1989), "Strategic orientation of business enterprises: The construct, dimensionality and measurement". *Management Science*, 35, 942-962.

Venkatraman, N. and Camilus, J. C. (1984), "Exploring the concept of fit in strategic management". *Academy of Management Review*, 9 (3), 513-525.

Venkatraman, N. and Grant, J. H. (1986), "Construct measurement in organizational strategy research: a critique and proposal". *Academy of Management Review*, 11 (1), 71-87.

Venkatraman, N. and Ramanujam, V. (1986), "Measurement of business performance in strategy research: A comparison of approaches". *Academy of Management Review*, 11, 801-814.

Vesper, V. D. (1979), "Strategic mapping – a tool for corporate planners". *Long Range Planning*, 12 (6), 75-92.

Veugelers, R. (1997), "Internal R&D expenditures and external technology sourcing". *Research Policy*, 26, 303-315.

Veugelers, R. and Cassiman, B. (1999), "Make and buy in innovation strategies: evidence from Belgian manufacturing firms". *Research Policy*, 28 (1), 63-80.

Vijande, M. L., Pérez, M. J., González, L. I., and Casielles, R. V. (2005), "Organizational learning and market orientation: Interface and effects on performance". *Industrial Marketing Management*, 34, 187-202.

Voss, G. B. and Voss, Z. G. (2000), "Strategic orientation and firm performance in an artistic environment". *Journal of Marketing*, 64 (1), 67-83.

Walker, O. C. and Ruekert, R. W. (1987), "Marketing's role in the implementation of business strategies: A critical review and conceptual framework". *Journal of Marketing*, 51, 15-33.

Walter, A., Auer, M., and Ritter, T. (2006), "The impact of network capabilities and entrepreneurial orientation on university spin-off performance". *Journal of Business Venturing,* 21 (4), 541-567.

Wang, C. L. and Ahmed, P. K. (2007), "Dynamic capabilities: a review and research agenda". *International Journal of Management Reviews*, 1, 31-51.

Watanabe, R. M. and Senoo, D. (2009), "Congruent knowledge management behaviors as discriminate sources of competitive advantage". *Journal of Workplace Learning*, 21 (2), 109-124.

Wattanasupachoke, T. (2009), "Innovation-oriented strategies of Thai Business Enterprises". *The Business Review*, 13 (2), 245-251.

Webster, F. E., Jr. (1992), "The Changing Role of Marketing in the Corporation", *Journal of Marketing,* 56 (4), 1-17.

Wei, L. Q. and Lau, C. M. (2008), "The impact of market orientation and strategic HRM on firm performance: the case of Chinese enterprises". *Journal of International Business Studies*, 39, 980-995.

Wernerfelt, B. (1984), "A resource-based view of the firm". *Strategic Management Journal*, 5, 171-180.

Wernerfelt, B. (1995), "A resource-based view of the firm: ten years after". *Strategic Management Journal*, 16, 171-174.

White, R. E. (1986), "Generic business strategies, organizational context and performance: an empirical investigation". *Strategic Management Journal,* 7 (2), 217-231.

Whitehill, M. (1997), "Knowledge-based strategy to deliver sustained competitive advantage". *Long Range Planning*, 30 (4), 621-627.

Wiklund, J. (1998), *Small Firm Growth and Performance: Entrepreneurship and Beyond*. Jonkoping International Business School, JIBS, Business Administration, Jonkoping University.

Wiklund, J. (1999), "The sustainability of the entrepreneurial orientation-performance relationship", *Entrepreneurship Theory and Practice*, 24 (1), 37-48.

Wiklund, J. and Shepherd, D. (2003), "Knowledge-based resources, entrepreneurial orientation and the performance of small and medium-sized businesses". *Strategic Management Journal*, 24, 1307-1314.

Wiklund, J. and Shepherd, D. (2005), "Entrepreneurial orientation and small business performance: a configurational approach". *Journal of Business Venturing,* 20 (1), 71-91.

Wilkens, U., Menzel, D., and Pawlowski, P. (2004), "Inside the black-box: Analyzing the generation of core competencies and dynamic capabilities by exploring collective minds. An organisational learning perspective". *Management Revue*, 15 (1), 8-26.

Williamson, O. (1985), *The Economic Institutions of Capitalism, Firms, Markets, Relational Contracting.* New York, The Free Press.

Winter, S. (1987), "Knowledge and competence as strategic assets" in D. Teece (Ed.), *The Competitive Challenge*, pp. 159-184, Berkeley, CA, Center for Research in Management.

Winter, S. (2003), "Understanding dynamic capabilities". *Strategic Management Journal*, 24, 991-995.

Wissema, J. G., Van Der Pol, H. W., and Messer, H. M. (1980), "Strategic management archetypes". *Strategic Management Journal*, 1 (1), 37-47.

Wolfe, R. A. (1994), "Organization innovation: review, critique and suggested research directions". *Journal of Management Studies*, 31 (3), 405-431.

Wolff, J. A. and Pett, T. L. (2006), "Small-Firm Performance: Modeling the Role of Product and Process Improvements". *Journal of Small Business Management*, 44 (2), 268-284.

Wong, P. K. and He, Z. L. (2005), "A comparative study of innovation behavior in Singapore's KIBS and manufacturing firms". *The Service Industries Journal*, 25 (1), 23-42.

Wong, P. K. and Singh, A. (2004), "The pattern of innovation in the knowledge-intensive business services sector of Singapore". *Singapore Management Review*, 26 (1), 21-44.

Wright, P. (1987), "A refinement of Porter's strategies". *Strategic Management Journal*, 8 (1), 93-101.

Wright, P., Kroll, M., Pringle, C., and Johnson, J. (1990), "Organization types, conduct, profitability and risk in the semiconductor industry". *Journal of Management Systems*, 2 (2), 33-48.

Wright, P., McMahan, G., and McWilliams, A. (1994), "Human resources and sustained competitive advantage: a resource-based perspective". *International Journal of Human Resource Management*, 5, 301-326.

Yeung, J. H. Y., Selen, W., Sum, C. C., and Huo, B. (2006), "Linking financial performance to strategic orientation and operational priorities: An empirical study of third-party logistics providers". *International Journal of Physical Distribution & Logistics Management,* 36 (3), 210-230.

Yin, R. K. (2003), *Case Study Research: Design and Methods.* Thousand Oaks, Sage Publications.

Zach, M. (1999), “Developing a knowledge strategy”. *California Management Review*, 41 (3), 125-145.

Zahra, S. A. (1989), “Organization strategy, innovation and performance”. *Academy of Management Best Papers*, 349-353.

Zahra, S. A. (1991), “Predictors of financial outcomes of corporate entrepreneurship: An exploratory study”. *Journal of Business Venturing*, 6, 259-285.

Zahra, S. A. (1993), “New product innovation in established companies: associations with industry and strategy variables”. *Entrepreneurship Theory and Practice,* 18 (2), 47.

Zahra, S. A. (1996), “Technology strategy and performance: A study of corporate-sponsored and independent biotechnology ventures”. *Journal of Business Venturing,* 11 (4), 289-321.

Zahra, S. A. (1999), “The changing rules of global competitiveness in the 21st century”. *The Academy of Management Executive*, 13 (1), 36-42.

Zahra, S. A. (2008), “Being entrepreneurial and market driven: implications for company performance”. *Journal of Strategy and Management,* 1 (2), 125-142.

Zahra, S. A. and Covin, J. G. (1993), “Business strategy, technology policy and firm performance”. *Strategic Management Journal,* 14, 451-478.

Zahra, S. A. and Covin, J. G. (1995), “Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis”. *Journal of Business Venturing,* 10 (1), 43-58.

Zahra, S. A. and Dess, G. G. (2001), “Entrepreneurship as a field of research: Encouraging dialogue and debate”. *Academy of Management Review*, 26 (1), 8-10.

Zahra, S. A. and Garvis, D. (2000), “International corporate entrepreneurship and firm performance: The moderating effect of international environmental hostility”. *Journal of Business Venturing,* 5 (6), 469–492.

Zahra, S. A. and George, G. (2002), “Absorptive capacity: A review, reconceptualization, and extension”. *Academy of Management Review*, 27 (2), 185-203.

Zahra, S. A., Ireland, R. D., and Hitt, M. A. (2000), “International expansion by new venture firms: international diversity, mode of market entry, technological learning, and performance”. *Academy of Management Journal*, 43 (5), 925-950.

Zahra, S. A., Matherne, B. P., and Carleton, J. M. (2003), “Technological resource leveraging and the internationalisation of new ventures”. *Journal of International Entrepreneurship*, 1 (2), 163-186.

Zahra, S. A. and Neubaum, D. O. (1998), “Environmental adversity and the entrepreneurial activities of new ventures”. *Journal of Developmental Entrepreneurship*, 3 (2), 123-140.

Zahra, S. A., Nielsen, A. P., and Bogner, W. C. (1999), “Corporate entrepreneurship, knowledge, and competence development”. *Entrepreneurship Theory and Practice*, 23 (3), 169-189.

Zahra, S. A. and Pearce, J. A., II (1990), “Research evidence on the Miles-Snow typology”. *Journal of Management*, 16 (4), 751-768.

Zahra, S. A., Sapienza, H. J., and Davidsson, P. (2006), “Entrepreneurship and dynamic capabilities: a review, model, and research agenda”. *Journal of Management Studies,* 43 (4), 917-955.

Zhou, K. Z. and Li, C. B. (2007), “How does strategic orientation matter in Chinese firms?”. *Asia Pacific Journal of Management*, 24, 447-466.

Zhou, K. Z. and Li, C. B. (2010), “How strategic orientations influence the building of dynamic capability in emerging economies?”. *Journal of Business Research*, 63, 224-231.

Zhou, K. Z., Yim, B. C., and Tse, D. K. (2005), “The effects of strategic orientations on technology- and market-based breakthrough innovations”. *Journal of Marketing*, 69 (2), 42-60.

Zollo, M. and Winter, S. G. (2002), “Deliberate learning and the evolution of dynamic capabilities”. *Organization Science*, 13 (3), 339-352.

Zott, C. (2003), “Dynamic capabilities and the emergence of intraindustry differential firm performance: Insights from a simulation study”. *Strategic Management Journal*, 24 (2), 97.

Zou, S., Taylor, C., and Osland, G. (1998), “The EXPERF scale: a cross-national generalized export performance measure”. *Journal of International Marketing*, 6 (3), 37-58.

Zupan, N. (1996), “Human resources as a source of competitive advantage in transitional companies: The case of Slovenia”. *Slovenska Ekonomska Revija*, 47 (5-6), 510-524 cited in Tomaz and Pucko (2006).

Appendix 1: Cover letter and Questionnaire (in English)

From: Dulce Matos Coelho

Subject: Request for collaboration, by replying to a questionnaire at the completion of the Ph.D. in Management

Dear Madam/Sir

I hereby apply for you filling out a questionnaire about business strategies in the context of my thesis for Ph.D. in Management from the University of Évora, held under the guidance of Professor Soumodip Sarkar.

This study is aimed at companies in knowledge Intensive Business Services operating in Portugal and aims to understand various factors relating to competitiveness strategies and the dynamic capabilities of organizations, with most of the questions based on studies and questionnaires prepared by scholars of reference in this field. Given the nature of the questionnaire, I kindly ask that it be filled by an element belonging to top management of the organization. What truly matters to us is your vision of the organization; there are no right or wrong answers. We ask you therefore to indicate the extent to which, in your opinion, the statements describe the current situation in your business.

This is a purely academic study, so we guarantee total anonymity and confidentiality of the information provided. The analysis of information will be made in aggregate way and no company's name will be referenced at any time.

If you wish to make any comment or have any questions please send an email to Dulce Matos Coelho (dmatos@esce.ips.pt).

Please click on the following address and you will be directed to the online survey (the questionnaire consists of 19 questions, it takes only about 5 minutes to complete and your collaboration is of utmost importance to the researcher):
http://dmatos.limequery.com/index.php?sid=49913&lang=pt

If you have any doubt in completing the question about your company's CAE, please find attached descriptions of CAE of the services under study.

I thank you for your cooperation and availability.

Yours sincerely

Dulce Matos Coelho
Ph.D. Student in Business Management - University of Évora
Lecturer - Department of Economics and Business Administration
College of Business Administration at the Polytechnic Institute of Setúbal
Email: dmatos@esce.ips.pt
Tel: 00 351 265 709 411

Questionnaire

In this questionnaire we are interested in your view of your company in some specific areas. Please indicate your extent of agreement about how well the statements describe the actual situation in your business, by marking a "□" in the appropriate category.

A. Strategic orientations

In our company:

Strongly disagree — Strongly agree

1 2 3 4 5

1.1. we have routine or regular measures of customer service;
1.2. our development is based on good market and customer information;
1.3. we know our competitors well;
1.4. we have a good sense of how our customers value our products and services;
1.5. we are more customer-focused than our competitors;
1.6. we compete primarily based on product and service differentiation;
1.7. the customer's interest should always come first, ahead of the owners';
1.8. our products/services are the best in the business;
1.9. I believe this business exists primarily to serve customers.

1 2 3 4 5

2.1. Generally our company prefers to…:

a. Strongly emphasize the marketing of the company's present products	Strongly emphasize R&D

How many new kinds of products or services has your company introduced over the past 5 years?

b. A lot of new products/services	No new products/services
c. The changes of the company's products/services have been radical	There has been small changes of the present products/services

2.2. Our company's relation toward competitors:

d. Normally we react upon initiatives taken by our competitors	Normally we initiate changes upon which our competitors react
e. Our company is seldom the first one to introduce new products or services, administrative systems, methods of production, etc.	Our company is very often the first company to introduce new products/ services, administrative systems, methods of production, etc.
f. Normally our company tries to avoid overt competition, but rather takes on a "live-and-let-live"-position	Normally our company takes a very competitive oriented "beat-the-competitor"-position

2.3. Generally our company has…

g. A strong tendency toward projects with low risk (with normal and secure yield)	A strong tendency toward getting involved in high risk projects (with a chance for high yield)

Generally we believe that…

h. The business environment of the company is such that fearless and powerful measures are needed to obtain the company's objectives	The business environment of the company is such that it is better to explore it carefully and gradually in order to achieve the company's objectives

When we are facing insecure decision-making situations…

i. We normally take up a fearless, aggressive position, in order to maximize the chance of being able to exploit possible opportunities	We normally take up a cautious "wait-and-see" position in order to minimize the hazard of making costly erroneous decisions.

In our company:

Strongly disagree				Strongly agree
1	**2**	**3**	**4**	**5**

3.1. the sense is that employee learning is an investment not an expense;
3.2. the basic values include learning as a key to improvement;
3.3. once we quit learning we endanger our firm;
3.4. we agree that the ability to learn is the key to improvement.

In our company:

Strongly disagree				Strongly agree
1	**2**	**3**	**4**	**5**

4.1. technical innovation, based on research results, is readily accepted;
4.2. management actively seeks innovative ideas;
4.3. innovation is readily accepted in program/project management;
4.4. people are penalized for new ideas that don´t work;
4.5. innovation is perceived as too risky and is resisted".

Have you carried out the following renewals in the last three years? If yes, how well did the renewals succeed?

	Succeeded Poorly				Succeeded Well
Not Carried Out	**1**	**2**	**3**	**4**	**5**

5.1. implementation of new or substantially changed company strategy;
5.2. implementation of new kinds of management methods;
5.3. new or substantially changed organizational structure;
5.4. new or substantially changed marketing method or strategy;
5.5. new or substantially changed technological equipment or manufacturing process;
5.6. substantial renewal of business processes;
5.7. substantial renewal of production/manufacturing processes.

B. Firm performance

We will now mention some measures of outcome. For each of them we want to know if you think that your outcome during the past 3 years has been better, worse or equal to that of other companies in your industry:

Much worse			Much better	
1	**2**	**3**	**4**	**5**

6.1. net profit;
6.2. growth of the company's value;
6.3. cash-flow;
6.4. development of sales;
6.5. market share;
6.6. social responsibility of the company as viewed by the external/internal audience
6.7. customer value.

C. Company's characterization

7.1. Our company has:
Less than 10 employees □; between 10 and 49 employees □; between 50 and 250 employees □

7.2. My job title is:
CEO □; top manager □; middle manager □; supervisor □

7.3. When was the company born? ___/______ (MM/YYYY)

7.4. The company's CAE (*Código de Actividade Económica*) is: ______

Appendix 2: Cover letter and Questionnaire (in Portuguese)

De: Dulce Matos Coelho

Assunto: Pedido de colaboração, através de resposta a questionário, no âmbito da realização do Doutoramento em Gestão

Exmos. Senhores

Venho por este meio solicitar a V. Exas. o preenchimento de um questionário sobre estratégias de competitividade empresarial, no âmbito da minha tese de Doutoramento em Gestão da Universidade de Évora, realizada sob orientação do Professor Doutor Soumodip Sarkar.

O presente estudo é dirigido às empresas de serviços intensivos em conhecimento a operar em Portugal e tem por objectivo compreender vários factores relacionados com as estratégias de competitividade e com as capacidades dinâmicas das organizações, tendo a maioria das questões sido baseada em estudos e questionários elaborados por autores de referência nesta área científica. Dada a natureza do questionário, mais solicito que este seja preenchido por um elemento que pertença à gestão de topo da organização. O que nos importa verdadeiramente é a sua visão da organização, não existindo respostas certas ou erradas. Pedimos-lhe, pois, que indique em que medida, na sua opinião, as afirmações descrevem a situação actual no seu negócio.

Trata-se de um estudo meramente académico, pelo que garantimos total confidencialidade e anonimato das informações por vós fornecidas. A análise da informação será feita de forma agregada e não será referenciado o nome de qualquer empresa em momento algum.

Se desejar efectuar qualquer comentário ou colocar alguma questão envie por favor um *e-mail* para Dulce Matos Coelho (dmatos@esce.ips.pt).

Por favor clique no seguinte endereço e será encaminhado para o inquérito *online* (o questionário, constituído por 19 perguntas, demorará apenas cerca de 5 minutos a ser preenchido e a sua colaboração é da maior importância para a investigadora):
http://dmatos.limequery.com/index.php?sid=49913&lang=pt

No caso de ter dúvidas no preenchimento da questão relativa ao CAE da sua empresa, enviamos em anexo as descrições dos CAEs dos serviços em estudo.

Desde já agradeço a sua colaboração e disponibilidade.

Com os meus melhores cumprimentos

Dulce Matos Coelho
Doutoranda em Gestão - Universidade de Évora
Professora Adjunta do Departamento de Economia e Gestão
da Escola Superior de Ciências Empresariais do Instituto Politécnico de Setúbal
Email: dmatos@esce.ips.pt
Tel: 00 351 265 709 411

Questionário

Neste questionário estamos interessados na visão que possui acerca da sua empresa relativamente a algumas áreas específicas. Pedimos-lhe, pois, que indique em que medida, na sua opinião, as afirmações descrevem a situação actual no seu negócio, marcando um "□" na categoria apropriada.

A. Orientações da Empresa

1. Na nossa empresa:

Discordo Plenamente		Não Concordo nem Discordo		Concordo Plenamente
1	2	3	4	5

1.1. Possuimos medidas rotineiras ou regulares de serviço ao cliente;
1.2. O nosso desenvolvimento é baseado em boa informação relativa ao mercado e ao cliente;
1.3. Conhecemos bem os nossos concorrentes;
1.4. Temos uma boa noção de como os nossos clientes valorizam os nossos produtos e serviços;
1.5. Somos mais centrados no cliente do que os nossos concorrentes;
1.6. Competimos sobretudo com base na diferenciação dos produtos e serviços;
1.7. O interesse do cliente deve vir sempre em primeiro lugar, acima dos interesses dos sócios/accionistas;
1.8. Os nossos produtos/serviços são os melhores no negócio;
1.9. Acredito que este negócio existe principalmente para servir os clientes.

1 2 3 4 5

2.1. Geralmente a nossa empresa prefere…:

a. Dar mais ênfase ao marketing dos produtos actuais da empresa	Dar mais ênfase à I&D

Nos últimos 5 anos a sua empresa introduziu no mercado...:

b. Muitos novos produtos/serviços	Nenhum novo produto/serviço

Nos últimos 5 anos...:

c. As mudanças nos produtos/serviços da empresa têm sido radicais	Tem havido pequenas mudanças nos actuais produtos/serviços

2.2. A relação da nossa empresa face aos concorrentes:

Na nossa empresa...:

d. Normalmente reagimos às iniciativas dos nossos concorrentes	Normalmente iniciamos mudanças às quais os nossos concorrentes reagem

A nossa empresa...:

e. Raramente é a primeira a introduzir novos produtos ou serviços, sistemas administrativos, métodos de produção, etc.	É muitas vezes a primeira a introduzir novos produtos ou serviços, sistemas administrativos, métodos de produção, etc.

Normalmente a nossa empresa...:

f. Tenta evitar uma concorrência declarada	Adopta uma atitude muito

e em vez disso tem uma atitude de "viver-e-deixar-viver"	competitiva de "vencer o concorrente"

2.3. Geralmente a nossa empresa tem uma forte tendência para …:

g. Projectos de baixo risco (com um rendimento normal e seguro)	Se envolver em projectos de alto risco (com probabilidade de elevado rendimento)

Geralmente acreditamos que o ambiente de negócios da nossa empresa …

h. faz com que sejam necessárias medidas destemidas e poderosas para alcançar os objectivos da empresa	promove medidas cuidadosas e graduais para alcançar os objectivos da empresa

Quando deparamos com situações de incerteza na tomada de decisões, n**ormalmente adoptamos atitudes …**

i. destemidas e agressivas para maximizar a probabilidade de poder explorar possíveis oportunidades	cautelosas de "esperar-para-ver" para minimizar o risco de tomar decisões erradas.

3. Na nossa empresa:

Discordo Plenamente	Não Concordo nem Discordo			Concordo Plenamente
1	2	3	4	5

3.1. A percepção é de que a aprendizagem dos colaboradores é um investimento e não uma despesa;
3.2. Os valores básicos incluem a aprendizagem como um factor determinante para a melhoria;
3.3. Se desistirmos da aprendizagem colocamos a nossa empresa em perigo;
3.4. Concordamos que a capacidade de aprender é o factor determinante para a melhoria.

4. Na nossa empresa:

Discordo Plenamente	Não Concordo nem Discordo			Concordo Plenamente
1	2	3	4	5

4.1. A inovação técnica, baseada em resultados da investigação, é prontamente aceite;
4.2. Os gestores procuram de forma activa ideias inovadoras;
4.3. A inovação é prontamente aceite na gestão de programas/projectos;
4.4. As pessoas são penalizadas por apresentarem ideias que não funcionam;
4.5. A inovação é vista como sendo muito arriscada e há resistência em relação a ela.

5. Nos últimos três anos, a empresa levou a cabo as seguintes renovações? Se sim, quão bem sucedidas foram essas renovações?

Não foi realizada	Teve muito pouco êxito				Teve muito êxito
NR	1	2	3	4	5

5.1. Implementação de uma estratégia (da empresa) nova ou substancialmente alterada;
5.2. Implementação de novos tipos de métodos de gestão;
5.3. Estrutura organizacional nova ou substancialmente alterada;
5.4. Métodos ou estratégia de marketing novos ou substancialmente alterados;

5.5. Equipamentos tecnológicos ou processos de fabrico novos ou substancialmente alterados;
5.6. Renovação substancial de processos de negócio;
5.7. Renovação substancial de processos de produção/fabrico.

B. Desempenho da empresa

Mencionaremos agora algumas medidas de resultado. Para cada uma, gostaríamos de saber se, na sua opinião, o desempenho da sua empresa nos últimos três anos tem sido melhor, pior ou igual ao de outras empresas do mesmo sector de actividade:

Muito pior					Muito melhor
	1	2	3	4	5

6.1. Resultado operacional;
6.2. Crescimento do valor da empresa;
6.3. *Cash-flow*;
6.4. Crescimento das vendas;
6.5. Quota de mercado;
6.6. Responsabilidade social da empresa percebida pelo público externo/interno;
6.7. Valor percebido pelos clientes.

C. Caracterização da empresa

7.1. A nossa empresa tem:
Menos de 10 trabalhadores ☐; entre 10 e 49 trabalhadores ☐; entre 50 e 250 trabalhadores ☐

7.2. O cargo que exerço na empresa é:
CEO ☐; director-geral ☐; outro cargo de direcção ☐; outro cargo que não de direcção ☐

7.3. Qual a data de constituição da empresa? ___/______ (MM/AAAA)

7.4. O CAE (Código de Actividade Económica) da empresa é: ______

Termina aqui o seu questionário. A sua colaboração foi extremamente importante. Muito obrigado. Caso pretenda um relatório dos resultados agregados do presente estudo, por favor indique um endereço de *e-mail* ou outro endereço para o qual possamos enviar o mesmo. Esta informação será tratada de forma autónoma não pondo, por isso, em causa a confidencialidade das respostas.

Endereço de *e-mail* ou morada:
____
____
____

Appendix 3: SPSS Outputs of Multiple Regression (Relative to V.2.3. Results of the multiple regression analysis of the relation between entrepreneurial orientation, market orientation and firm performance)

Table 66 - Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3,198	,099		32,191	,000	3,002	3,394					
	Firm age	,328	,122	,185	2,679	,008	,087	,569	,185	,185	,185	1,000	1,000
2	(Constant)	3,481	,183		19,009	,000	3,120	3,842					
	Firm age	,225	,122	,127	1,854	,065	-,014	,465	,185	,130	,124	,950	1,053
	Small ent.	-,398	,180	-,231	-2,217	,028	-,753	-,044	-,295	-,155	-,148	,409	2,445
	Med. ent.	,093	,197	,049	,472	,637	-,295	,481	,255	,033	,032	,407	2,460
3	(Constant)	3,306	,197		16,799	,000	2,918	3,694					
	Firm age	,286	,123	,161	2,320	,021	,043	,529	,185	,162	,153	,906	1,104
	Small ent.	-,437	,179	-,254	-2,445	,015	-,789	-,084	-,295	-,170	-,162	,405	2,467
	Med. ent.	,062	,195	,033	,318	,751	-,323	,447	,255	,022	,021	,405	2,472
	P_kibs	,269	,118	,155	2,282	,024	,037	,502	,090	,159	,151	,941	1,063
4	(Constant)	,330	,490		,674	,501	-,637	1,298					
	Firm age	,260	,114	,147	2,278	,024	,035	,486	,185	,160	,136	,854	1,171
	Small ent.	-,174	,165	-,101	-1,051	,294	-,500	,152	-,295	-,075	-,063	,384	2,606
	Med. ent.	,166	,176	,088	,941	,348	-,182	,514	,255	,067	,056	,402	2,490
	P_kibs	,070	,112	,040	,621	,536	-,152	,292	,090	,044	,037	,841	1,188
	EO	,108	,079	,084	1,357	,176	-,049	,264	,095	,096	,081	,928	1,078
	MO	,666	,099	,429	6,694	,000	,470	,862	,485	,430	,398	,862	1,160
5	(Constant)	-2,047	2,178		-,940	,348	-6,341	2,247					
	Firm age	,269	,114	,152	2,352	,020	,043	,495	,185	,165	,140	,850	1,176

Small ent.	-,150	,167	-,087	-,903	,368	-,479	,178	-,295	-,064	-,054	,378	2,648
Med. ent.	,173	,176	,092	,979	,329	-,175	,520	,255	,070	,058	,401	2,492
P_kibs	,071	,112	,041	,634	,526	-,150	,293	,090	,045	,038	,841	1,189
EO	,871	,686	,678	1,270	,206	-,481	2,222	,095	,090	,076	,012	80,707
MO	1,251	,531	,806	2,354	,020	,203	2,298	,485	,165	,140	,030	33,145
EO_MO	-,189	,169	-,724	-1,121	,264	-,522	,144	,321	-,080	-,067	,008	117,964

a. Dependent Variable: Performance

Table 67 - Collinearity diagnostics

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions							
				(Constant)	Firm age	Small ent.	Med. ent.	P_kibs	EO	MO	EO_MO
1	1	1,812	1,000	,09	,09						
	2	,188	3,100	,91	,91						
2	1	2,680	1,000	,01	,04	,01	,01				
	2	1,013	1,627	,00	,00	,06	,17				
	3	,251	3,267	,03	,86	,07	,18				
	4	,056	6,938	,96	,10	,86	,63				
3	1	3,320	1,000	,01	,02	,01	,01	,02			
	2	1,028	1,797	,00	,01	,05	,18	,01			
	3	,417	2,821	,00	,31	,01	,02	,46			
	4	,182	4,275	,04	,51	,20	,26	,44			
	5	,053	7,952	,96	,14	,73	,54	,07			
4	1	5,201	1,000	,00	,01	,00	,00	,01	,00	,00	
	2	1,028	2,249	,00	,01	,05	,18	,00	,00	,00	
	3	,418	3,529	,00	,28	,01	,02	,42	,00	,00	
	4	,216	4,905	,00	,56	,03	,06	,43	,03	,00	
	5	,103	7,103	,00	,00	,72	,66	,00	,07	,01	
	6	,026	14,028	,04	,12	,02	,01	,12	,78	,24	
	7	,007	27,207	,96	,02	,17	,06	,01	,13	,75	
5	1	6,142	1,000	,00	,01	,00	,00	,01	,00	,00	,00

	2	1,028	2,444	,00	,01	,05	,18	,00	,00	,00	,00
	3	,418	3,834	,00	,29	,01	,02	,42	,00	,00	,00
	4	,240	5,055	,00	,51	,00	,01	,41	,00	,00	,00
	5	,125	7,010	,00	,02	,61	,63	,02	,00	,00	,00
	6	,031	14,077	,00	,16	,14	,08	,10	,00	,01	,00
	7	,015	19,912	,01	,00	,17	,07	,04	,01	,01	,01
	8	,000	208,482	,99	,01	,03	,00	,00	,99	,99	,99

a. Dependent Variable: Performance

Table 68 - Coefficients (using mean-centered scales)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3,198	,099		32,191	,000	3,002	3,394					
	Firm age	,328	,122	,185	2,679	,008	,087	,569	,185	,185	,185	1,000	1,000
2	(Constant)	3,481	,183		19,009	,000	3,120	3,842					
	Firm age	,225	,122	,127	1,854	,065	-,014	,465	,185	,130	,124	,950	1,053
	Small ent.	-,398	,180	-,231	-2,217	,028	-,753	-,044	-,295	-,155	-,148	,409	2,445
	Med. ent.	,093	,197	,049	,472	,637	-,295	,481	,255	,033	,032	,407	2,460
3	(Constant)	3,306	,197		16,799	,000	2,918	3,694					
	Firm age	,286	,123	,161	2,320	,021	,043	,529	,185	,162	,153	,906	1,104
	Small ent.	-,437	,179	-,254	-2,445	,015	-,789	-,084	-,295	-,170	-,162	,405	2,467
	Med. ent.	,062	,195	,033	,318	,751	-,323	,447	,255	,022	,021	,405	2,472
	P_kibs	,269	,118	,155	2,282	,024	,037	,502	,090	,159	,151	,941	1,063
4	(Constant)	3,259	,181		18,017	,000	2,903	3,616					
	Firm age	,260	,114	,147	2,278	,024	,035	,486	,185	,160	,136	,854	1,171
	Small ent.	-,174	,165	-,101	-1,051	,294	-,500	,152	-,295	-,075	-,063	,384	2,606
	Med. ent.	,166	,176	,088	,941	,348	-,182	,514	,255	,067	,056	,402	2,490
	P_kibs	,070	,112	,040	,621	,536	-,152	,292	,090	,044	,037	,841	1,188
	EOcen	,108	,079	,084	1,357	,176	-,049	,264	,095	,096	,081	,928	1,078

MOcen	,666	,099	,429	6,694	,000	,470	,862	,485	,430	,398	,862	1,160
5 (Constant)	3,241	,182		17,851	,000	2,883	3,599					
Firm age	,269	,114	,152	2,352	,020	,043	,495	,185	,165	,140	,850	1,176
Small ent.	-,150	,167	-,087	-,903	,368	-,479	,178	-,295	-,064	-,054	,378	2,648
Med. ent.	,173	,176	,092	,979	,329	-,175	,520	,255	,070	,058	,401	2,492
P_kibs	,071	,112	,041	,634	,526	-,150	,293	,090	,045	,038	,841	1,189
EOcen	,131	,082	,102	1,601	,111	-,030	,293	,095	,113	,095	,866	1,155
MOcen	,677	,100	,436	6,778	,000	,480	,874	,485	,435	,403	,853	1,172
EOcen_MOcen	-,189	,169	-,070	-1,121	,264	-,522	,144	-,017	-,080	-,067	,911	1,098

a. Dependent Variable:
Performance

Table 69 - Coefficients (considering, for EO, only its dimension risk-taking and using mean-centered scales)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	3,198	,099		32,191	,000	3,002	3,394					
Firm age	,328	,122	,185	2,679	,008	,087	,569	,185	,185	,185	1,000	1,000
2 (Constant)	3,481	,183		19,009	,000	3,120	3,842					
Firm age	,225	,122	,127	1,854	,065	-,014	,465	,185	,130	,124	,950	1,053
Small ent.	-,398	,180	-,231	-2,217	,028	-,753	-,044	-,295	-,155	-,148	,409	2,445
Med. ent.	,093	,197	,049	,472	,637	-,295	,481	,255	,033	,032	,407	2,460
3 (Constant)	3,306	,197		16,799	,000	2,918	3,694					
Firm age	,286	,123	,161	2,320	,021	,043	,529	,185	,162	,153	,906	1,104
Small ent.	-,437	,179	-,254	-2,445	,015	-,789	-,084	-,295	-,170	-,162	,405	2,467
Med. ent.	,062	,195	,033	,318	,751	-,323	,447	,255	,022	,021	,405	2,472
P_kibs	,269	,118	,155	2,282	,024	,037	,502	,090	,159	,151	,941	1,063
4 (Constant)	3,307	,180		18,393	,000	2,952	3,661					
Firm age	,227	,114	,128	1,992	,048	,002	,451	,185	,140	,119	,869	1,150

Small ent.	-,192	,166	-,112	-1,159	,248	-,519	,135	-,295	-,082	-,069	,386	2,591
Med. ent.	,162	,177	,086	,916	,361	-,187	,512	,255	,065	,055	,402	2,489
P_kibs	,048	,113	,028	,427	,670	-,174	,270	,090	,030	,026	,848	1,179
EOriskcen	,004	,057	,004	,063	,949	-,110	,117	-,080	,005	,004	,939	1,065
MOcen	,678	,100	,437	6,767	,000	,480	,875	,485	,433	,405	,858	1,165
5 (Constant)	3,336	,181		18,429	,000	2,979	3,693					
Firm age	,211	,114	,119	1,847	,066	-,014	,437	,185	,130	,110	,859	1,164
Small ent.	-,219	,167	-,127	-1,315	,190	-,548	,110	-,295	-,093	-,078	,379	2,636
Med. ent.	,163	,177	,087	,920	,359	-,186	,512	,255	,065	,055	,402	2,489
P_kibs	,059	,113	,034	,527	,599	-,163	,282	,090	,038	,031	,843	1,186
EOriskcen	-,005	,058	-,005	-,082	,935	-,119	,109	-,080	-,006	-,005	,926	1,080
MOcen	,628	,108	,404	5,832	,000	,415	,840	,485	,384	,348	,741	1,350
EOriskcen_MOcen	,137	,109	,082	1,257	,210	-,078	,353	,206	,089	,075	,843	1,186

a. Dependent Variable:
Performance

Table 70 - Coefficients(considering, for EO, only its dimension innovativeness and using mean-centered scales)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	3,198	,099		32,191	,000	3,002	3,394					
Firm age	,328	,122	,185	2,679	,008	,087	,569	,185	,185	,185	1,000	1,000
2 (Constant)	3,481	,183		19,009	,000	3,120	3,842					
Firm age	,225	,122	,127	1,854	,065	-,014	,465	,185	,130	,124	,950	1,053
Small ent.	-,398	,180	-,231	-2,217	,028	-,753	-,044	-,295	-,155	-,148	,409	2,445
Med. ent.	,093	,197	,049	,472	,637	-,295	,481	,255	,033	,032	,407	2,460
3 (Constant)	3,306	,197		16,799	,000	2,918	3,694					
Firm age	,286	,123	,161	2,320	,021	,043	,529	,185	,162	,153	,906	1,104

Small ent.	-,437	,179	-,254	-2,445	,015	-,789	-,084	-,295	-,170	-,162	,405	2,467
Med. ent.	,062	,195	,033	,318	,751	-,323	,447	,255	,022	,021	,405	2,472
P_kibs	,269	,118	,155	2,282	,024	,037	,502	,090	,159	,151	,941	1,063
4 (Constant)	3,302	,178		18,580	,000	2,951	3,652					
Firm age	,255	,115	,144	2,214	,028	,028	,482	,185	,155	,132	,844	1,185
Small ent.	-,204	,165	-,118	-1,230	,220	-,530	,123	-,295	-,087	-,073	,385	2,600
Med. ent.	,147	,177	,078	,828	,409	-,203	,497	,255	,059	,049	,399	2,507
P_kibs	,046	,111	,026	,409	,683	-,174	,265	,090	,029	,024	,860	1,163
EOinnovcen	,069	,067	,065	1,035	,302	-,062	,200	,097	,073	,062	,905	1,105
MOcen	,660	,101	,425	6,560	,000	,462	,859	,485	,423	,391	,846	1,183
5 (Constant)	3,302	,178		18,527	,000	2,951	3,654					
Firm age	,256	,116	,144	2,200	,029	,027	,485	,185	,155	,132	,831	1,203
Small ent.	-,205	,168	-,119	-1,223	,223	-,537	,126	-,295	-,087	-,073	,375	2,665
Med. ent.	,144	,181	,077	,799	,425	-,212	,501	,255	,057	,048	,385	2,595
P_kibs	,046	,112	,026	,409	,683	-,175	,266	,090	,029	,024	,860	1,163
EOinnovcen	,069	,067	,065	1,034	,302	-,063	,201	,097	,073	,062	,904	1,106
MOcen	,659	,102	,425	6,436	,000	,457	,861	,485	,417	,385	,821	1,218
EOinnovcen_MOcen	,009	,126	,004	,071	,944	-,239	,257	,062	,005	,004	,934	1,071

a. Dependent Variable:
Performance

Table 71 - Correlations results (considering, for EO, only its dimension proactiveness and using mean-centered scales)

Correlations

		Performance	Firm age	Small ent.	Med. ent.	P_kibs	EOproactcen	MOcen	EOproact_MOcent
Pearson Correlation	Performance	1,000	,185	-,295	,255	,090	,352	,485	-,311
	Firm age	,185	1,000	-,203	,217	-,225	-,031	,051	,033
	Small ent.	-,295	-,203	1,000	-,768	,106	-,275	-,216	,031
	Med. ent.	,255	,217	-,768	1,000	-,052	,140	,129	-,020
	P_kibs	,090	-,225	,106	-,052	1,000	-,130	,248	-,053
	EOproactcen	,352	-,031	-,275	,140	-,130	1,000	,395	-,196

	MOcen	,485	,051	-,216	,129	,248	,395	1,000	-,437
	EOproact_MOcent	-,311	,033	,031	-,020	-,053	-,196	-,437	1,000
Sig. (1-tailed)	Performance	.	,004	,000	,000	,099	,000	,000	,000
	Firm age	,004	.	,002	,001	,001	,330	,232	,321
	Small ent.	,000	,002	.	,000	,064	,000	,001	,332
	Med. ent.	,000	,001	,000	.	,230	,023	,032	,388
	P_kibs	,099	,001	,064	,230	.	,031	,000	,225
	EOproactcen	,000	,330	,000	,023	,031	.	,000	,002
	MOcen	,000	,232	,001	,032	,000	,000	.	,000
	EOproact_MOcent	,000	,321	,332	,388	,225	,002	,000	.
N	Performance	205	205	205	205	205	205	205	205
	Firm age	205	205	205	205	205	205	205	205
	Small ent.	205	205	205	205	205	205	205	205
	Med. ent.	205	205	205	205	205	205	205	205
	P_kibs	205	205	205	205	205	205	205	205
	EOproactcen	205	205	205	205	205	205	205	205
	MOcen	205	205	205	205	205	205	205	205
	EOproact_MOcent	205	205	205	205	205	205	205	205

Table 72 - Model summary results (considering, for EO, only its dimension proactiveness and using mean-centered scales)

Model Summary[f]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,185[a]	,034	,029	,83117	,034	7,177	1	203	,008	
2	,323[b]	,104	,091	,80435	,070	7,882	2	201	,001	
3	,357[c]	,127	,110	,79606	,023	5,207	1	200	,024	
4	,566[d]	,321	,300	,70590	,193	28,177	2	198	,000	
5	,581[e]	,337	,314	,69892	,017	4,976	1	197	,027	1,700

a. Predictors: (Constant), Firm age

b. Predictors: (Constant), Firm age, Small ent., Med. ent.

c. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs

d. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, EOproactcen, MOcen

Model Summary[f]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,185[a]	,034	,029	,83117	,034	7,177	1	203	,008	
2	,323[b]	,104	,091	,80435	,070	7,882	2	201	,001	
3	,357[c]	,127	,110	,79606	,023	5,207	1	200	,024	
4	,566[d]	,321	,300	,70590	,193	28,177	2	198	,000	
5	,581[e]	,337	,314	,69892	,017	4,976	1	197	,027	1,700

a. Predictors: (Constant), Firm age

b. Predictors: (Constant), Firm age, Small ent., Med. ent.

c. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs

d. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, EOproactcen, MOcen

e. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, EOproactcen, MOcen, EOproact_MOcent

f. Dependent Variable: Performance

Table 73 - Analysis of variance results (considering, for EO, only its dimension proactiveness and using mean-centered scales)

ANOVA[f]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,958	1	4,958	7,177	,008[a]
	Residual	140,243	203	,691		
	Total	145,201	204			
2	Regression	15,157	3	5,052	7,809	,000[b]
	Residual	130,044	201	,647		
	Total	145,201	204			
3	Regression	18,457	4	4,614	7,281	,000[c]
	Residual	126,744	200	,634		
	Total	145,201	204			
4	Regression	46,538	6	7,756	15,566	,000[d]
	Residual	98,663	198	,498		
	Total	145,201	204			
5	Regression	48,969	7	6,996	14,321	,000[e]

	Residual	96,232	197	,488		
	Total	145,201	204			

a. Predictors: (Constant), Firm age

b. Predictors: (Constant), Firm age, Small ent., Med. ent.

c. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs

d. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, EOproactcen, MOcen

e. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, EOproactcen, MOcen, EOproact_MOcent

f. Dependent Variable: Performance

Table 74 - Coefficients results (considering, for EO, only its dimension proactiveness and using mean-centered scales)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	3,198	,099		32,191	,000	3,002	3,394					
Firm age	,328	,122	,185	2,679	,008	,087	,569	,185	,185	,185	1,000	1,000
2 (Constant)	3,481	,183		19,009	,000	3,120	3,842					
Firm age	,225	,122	,127	1,854	,065	-,014	,465	,185	,130	,124	,950	1,053
Small ent.	-,398	,180	-,231	-2,217	,028	-,753	-,044	-,295	-,155	-,148	,409	2,445
Med. ent.	,093	,197	,049	,472	,637	-,295	,481	,255	,033	,032	,407	2,460
3 (Constant)	3,306	,197		16,799	,000	2,918	3,694					
Firm age	,286	,123	,161	2,320	,021	,043	,529	,185	,162	,153	,906	1,104
Small ent.	-,437	,179	-,254	-2,445	,015	-,789	-,084	-,295	-,170	-,162	,405	2,467
Med. ent.	,062	,195	,033	,318	,751	-,323	,447	,255	,022	,021	,405	2,472
P_kibs	,269	,118	,155	2,282	,024	,037	,502	,090	,159	,151	,941	1,063
4 (Constant)	3,164	,182		17,416	,000	2,806	3,522					
Firm age	,273	,111	,154	2,466	,014	,055	,492	,185	,173	,144	,879	1,137
Small ent.	-,105	,165	-,061	-,635	,526	-,430	,221	-,295	-,045	-,037	,373	2,680
Med. ent.	,198	,174	,105	1,136	,257	-,146	,541	,255	,080	,067	,400	2,502

	P_kibs	,129	,113	,074	1,141	,255	-,094	,352	,090	,081	,067	,805	1,242
	EOproactcen	,197	,069	,195	2,860	,005	,061	,333	,352	,199	,168	,741	1,350
	MOcen	,551	,107	,355	5,140	,000	,339	,762	,485	,343	,301	,720	1,388
5	(Constant)	3,188	,180		17,693	,000	2,833	3,543					
	Firm age	,290	,110	,163	2,635	,009	,073	,507	,185	,185	,153	,875	1,143
	Small ent.	-,133	,164	-,077	-,812	,418	-,457	,190	-,295	-,058	-,047	,371	2,696
	Med. ent.	,183	,172	,098	1,063	,289	-,157	,523	,255	,076	,062	,399	2,505
	P_kibs	,150	,112	,087	1,338	,183	-,071	,372	,090	,095	,078	,799	1,251
	EOproactcen	,194	,068	,192	2,845	,005	,059	,328	,352	,199	,165	,740	1,351
	MOcen	,445	,116	,286	3,826	,000	,215	,674	,485	,263	,222	,600	1,666
	EOproact_MOcent	-,153	,069	-,145	-2,231	,027	-,289	-,018	-,311	-,157	-,129	,795	1,257

a. Dependent Variable:
Performance

Table 75 - Collinearity diagnostics (considering, for EO, only its dimension proactiveness and using mean-centered scales)

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Firm age	Small ent.	Med. ent.	P_kibs	EOproactcen	MOcen	EOproact_MOcent
1	1	1,812	1,000	,09	,09						
	2	,188	3,100	,91	,91						
2	1	2,680	1,000	,01	,04	,01	,01				
	2	1,013	1,627	,00	,00	,06	,17				
	3	,251	3,267	,03	,86	,07	,18				
	4	,056	6,938	,96	,10	,86	,63				
3	1	3,320	1,000	,01	,02	,01	,01	,02			
	2	1,028	1,797	,00	,01	,05	,18	,01			
	3	,417	2,821	,00	,31	,01	,02	,46			
	4	,182	4,275	,04	,51	,20	,26	,44			
	5	,053	7,952	,96	,14	,73	,54	,07			
4	1	3,325	1,000	,01	,02	,01	,01	,02	,00	,00	
	2	1,530	1,474	,00	,00	,01	,02	,00	,20	,19	

	3	,914	1,907	,00	,01	,03	,16	,02	,03	,13	
	4	,646	2,268	,00	,01	,01	,01	,04	,58	,37	
	5	,378	2,964	,00	,38	,00	,04	,29	,06	,15	
	6	,158	4,580	,03	,42	,23	,26	,54	,05	,17	
	7	,049	8,278	,96	,16	,71	,51	,09	,08	,01	
5	1	3,389	1,000	,01	,02	,01	,01	,02	,00	,00	,01
	2	1,738	1,396	,00	,00	,00	,01	,00	,12	,14	,09
	3	1,026	1,817	,00	,01	,03	,11	,01	,03	,03	,15
	4	,741	2,138	,00	,00	,01	,06	,00	,56	,00	,21
	5	,531	2,527	,00	,04	,01	,00	,08	,09	,41	,46
	6	,371	3,024	,00	,36	,00	,05	,24	,07	,22	,05
	7	,155	4,671	,03	,42	,23	,24	,55	,05	,20	,03
	8	,048	8,372	,96	,16	,71	,52	,09	,08	,00	,00

a. Dependent Variable: Performance

Table 76 - Model summary (considering, for EO, only its dimension proactiveness and using dummies)

Model Summary[f]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,185[a]	,034	,029	,83117	,034	7,177	1	203	,008	
2	,323[b]	,104	,091	,80435	,070	7,882	2	201	,001	
3	,357[c]	,127	,110	,79606	,023	5,207	1	200	,024	
4	,566[d]	,321	,300	,70590	,193	28,177	2	198	,000	
5	,577[e]	,333	,309	,70121	,012	3,657	1	197	,057	1,722

a. Predictors: (Constant), Firm age

b. Predictors: (Constant), Firm age, Small ent., Med. ent.

c. Predictors: (Constant Firm age, Small ent., Med. ent., P_kibs

d. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, EOproact, MO

e. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, EOproact, MO, EOproacthigh_MOhigh

f. Dependent Variable: Performance

Table 77 - Analysis of variance (considering, for EO, only its dimension proactiveness and using dummies)

ANOVA[f]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,958	1	4,958	7,177	,008[a]
	Residual	140,243	203	,691		
	Total	145,201	204			
2	Regression	15,157	3	5,052	7,809	,000[b]
	Residual	130,044	201	,647		
	Total	145,201	204			
3	Regression	18,457	4	4,614	7,281	,000[c]
	Residual	126,744	200	,634		
	Total	145,201	204			
4	Regression	46,538	6	7,756	15,566	,000[d]
	Residual	98,663	198	,498		
	Total	145,201	204			
5	Regression	48,336	7	6,905	14,043	,000[e]
	Residual	96,865	197	,492		
	Total	145,201	204			

a. Predictors: (Constant), Firm age

b. Predictors: (Constant), Firm age, Small ent., Med. ent.

c. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs

d. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, EOproact, MO

e. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, EOproact, MO, EOproacthigh_MOhigh

f. Dependent Variable: Performance

Table 78 - Coefficients (considering, for EO, only its dimension proactiveness and using dummies)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	3,198	,099		32,191	,000	3,002	3,394					
Firm age	,328	,122	,185	2,679	,008	,087	,569	,185	,185	,185	1,000	1,000

2 (Constant)	3,481	,183		19,009	,000	3,120	3,842					
Firm age	,225	,122	,127	1,854	,065	-,014	,465	,185	,130	,124	,950	1,053
Small ent.	-,398	,180	-,231	-2,217	,028	-,753	-,044	-,295	-,155	-,148	,409	2,445
Med. ent.	,093	,197	,049	,472	,637	-,295	,481	,255	,033	,032	,407	2,460
3 (Constant)	3,306	,197		16,799	,000	2,918	3,694					
Firm age	,286	,123	,161	2,320	,021	,043	,529	,185	,162	,153	,906	1,104
Small ent.	-,437	,179	-,254	-2,445	,015	-,789	-,084	-,295	-,170	-,162	,405	2,467
Med. ent.	,062	,195	,033	,318	,751	-,323	,447	,255	,022	,021	,405	2,472
P_kibs	,269	,118	,155	2,282	,024	,037	,502	,090	,159	,151	,941	1,063
4 (Constant)	,361	,432		,836	,404	-,491	1,213					
Firm age	,273	,111	,154	2,466	,014	,055	,492	,185	,173	,144	,879	1,137
Small ent.	-,105	,165	-,061	-,635	,526	-,430	,221	-,295	-,045	-,037	,373	2,680
Med. ent.	,198	,174	,105	1,136	,257	-,146	,541	,255	,080	,067	,400	2,502
P_kibs	,129	,113	,074	1,141	,255	-,094	,352	,090	,081	,067	,805	1,242
MO	,551	,107	,355	5,140	,000	,339	,762	,485	,343	,301	,720	1,388
EOproact	,197	,069	,195	2,860	,005	,061	,333	,352	,199	,168	,741	1,350
5 (Constant)	-,032	,476		-,068	,946	-,971	,906					
Firm age	,284	,110	,160	2,575	,011	,066	,501	,185	,180	,150	,877	1,140
Small ent.	-,144	,165	-,083	-,869	,386	-,470	,182	-,295	-,062	-,051	,367	2,721
Med. ent.	,176	,173	,094	1,017	,311	-,166	,518	,255	,072	,059	,398	2,512
P_kibs	,168	,114	,097	1,468	,144	-,058	,393	,090	,104	,085	,780	1,282
MO	,625	,113	,403	5,516	,000	,402	,849	,485	,366	,321	,635	1,575
EOproact	,251	,074	,248	3,391	,001	,105	,397	,352	,235	,197	,633	1,580
EOproacthigh_MOhigh	-,271	,142	-,146	-1,912	,057	-,551	,008	,251	-,135	-,111	,582	1,719

a. Dependent Variable:
Performance

Table 79 - Collinearity diagnostics using dummies (considering, for EO, only its dimension proactiveness and using dummies)

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition	Variance Proportions

				(Constant)	Firm age	Small ent.	Med. ent.	P_kibs	MO	EOproact	EOproacthigh_MOhigh
1	1	1,812	1,000	,09	,09						
	2	,188	3,100	,91	,91						
2	1	2,680	1,000	,01	,04	,01	,01				
	2	1,013	1,627	,00	,00	,06	,17				
	3	,251	3,267	,03	,86	,07	,18				
	4	,056	6,938	,96	,10	,86	,63				
3	1	3,320	1,000	,01	,02	,01	,01	,02			
	2	1,028	1,797	,00	,01	,05	,18	,01			
	3	,417	2,821	,00	,31	,01	,02	,46			
	4	,182	4,275	,04	,51	,20	,26	,44			
	5	,053	7,952	,96	,14	,73	,54	,07			
4	1	5,192	1,000	,00	,01	,00	,00	,01	,00	,00	
	2	1,029	2,247	,00	,01	,05	,17	,01	,00	,00	
	3	,418	3,522	,00	,28	,00	,02	,41	,00	,00	
	4	,213	4,937	,00	,62	,02	,05	,40	,00	,03	
	5	,117	6,668	,00	,00	,59	,61	,00	,01	,08	
	6	,023	15,032	,14	,09	,20	,09	,12	,14	,88	
	7	,008	25,917	,86	,00	,14	,05	,05	,85	,01	
5	1	5,560	1,000	,00	,01	,00	,00	,01	,00	,00	,01
	2	1,066	2,284	,00	,00	,05	,14	,01	,00	,00	,03
	3	,642	2,943	,00	,05	,00	,05	,01	,00	,00	,48
	4	,399	3,732	,00	,23	,00	,05	,41	,00	,00	,07
	5	,213	5,113	,00	,62	,03	,06	,38	,00	,02	,00
	6	,092	7,775	,00	,00	,73	,62	,02	,01	,08	,19
	7	,022	16,054	,09	,08	,10	,05	,17	,16	,88	,05
	8	,006	29,511	,91	,00	,08	,03	,01	,83	,02	,18

a. Dependent Variable: Performance

Appendix 4: SPSS Outputs of Multiple Regression (Relative to VI.2.3. Results of the multiple regression analysis of the relation between market orientation, learning orientation and firm performance)

Table 80 - Correlations (using mean-centered scales)

Correlations

		Performance	Firm age	Small ent.	Med. ent.	P_kibs	MOcen	LOcen	MO_LOcen
Pearson Correlation	Performance	1,000	,180	-,293	,253	,095	,483	,569	-,424
	Firm age	,180	1,000	-,195	,211	-,217	,044	,014	-,013
	Small ent.	-,293	-,195	1,000	-,767	,101	-,213	-,071	,072
	Med. ent.	,253	,211	-,767	1,000	-,047	,126	,125	-,072
	P_kibs	,095	-,217	,101	-,047	1,000	,253	,186	-,111
	MOcen	,483	,044	-,213	,126	,253	1,000	,673	-,598
	LOcen	,569	,014	-,071	,125	,186	,673	1,000	-,662
	MO_LOcen	-,424	-,013	,072	-,072	-,111	-,598	-,662	1,000
Sig. (1-tailed)	Performance	.	,005	,000	,000	,090	,000	,000	,000
	Firm age	,005	.	,003	,001	,001	,264	,421	,426
	Small ent.	,000	,003	.	,000	,076	,001	,157	,154
	Med. ent.	,000	,001	,000	.	,251	,036	,037	,153
	P_kibs	,090	,001	,076	,251	.	,000	,004	,058
	MOcen	,000	,264	,001	,036	,000	.	,000	,000
	LOcen	,000	,421	,157	,037	,004	,000	.	,000
	MO_LOcen	,000	,426	,154	,153	,058	,000	,000	.
N	Performance	203	203	203	203	203	203	203	203
	Firm age	203	203	203	203	203	203	203	203
	Small ent.	203	203	203	203	203	203	203	203
	Med. ent.	203	203	203	203	203	203	203	203
	P_kibs	203	203	203	203	203	203	203	203
	MOcen	203	203	203	203	203	203	203	203
	LOcen	203	203	203	203	203	203	203	203
	MO_LOcen	203	203	203	203	203	203	203	203

Table 81 - Model summary (using mean-centered scales)

Model Summary[f]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,180[a]	,032	,028	,83506	,032	6,730	1	201	,010	
2	,320[b]	,102	,089	,80834	,070	7,753	2	199	,001	
3	,354[c]	,125	,108	,79995	,023	5,197	1	198	,024	
4	,641[d]	,411	,393	,65977	,286	47,537	2	196	,000	
5	,642[e]	,412	,391	,66073	,001	,432	1	195	,512	1,646

a. Predictors: (Constant), Firm age

b. Predictors: (Constant), Firm age, Small ent., Med. ent.

c. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs

d. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, LOcen, MOcen

e. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, LOcen, MOcen, MO_LOcen

f. Dependent Variable: Performance

Table 82 - Analysis of variance (using mean-centered scales)

ANOVA[f]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,693	1	4,693	6,730	,010[a]
	Residual	140,162	201	,697		
	Total	144,855	202			
2	Regression	14,825	3	4,942	7,563	,000[b]
	Residual	130,030	199	,653		
	Total	144,855	202			
3	Regression	18,151	4	4,538	7,091	,000[c]
	Residual	126,704	198	,640		
	Total	144,855	202			
4	Regression	59,537	6	9,923	22,795	,000[d]
	Residual	85,318	196	,435		
	Total	144,855	202			
5	Regression	59,725	7	8,532	19,544	,000[e]
	Residual	85,130	195	,437		

Total	144,855	202			

a. Predictors: (Constant), Firm age

b. Predictors: (Constant), Firm age, Small ent., Med. ent.

c. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs

d. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, LOcen, MOcen

e. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, LOcen, MOcen, MO_LOcen

f. Dependent Variable: Performance

Table 83- Coefficients (using mean-centered scales)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	3,204	,101		31,637	,000	3,004	3,403					
Firm age	,322	,124	,180	2,594	,010	,077	,567	,180	,180	,180	1,000	1,000
2 (Constant)	3,482	,184		18,894	,000	3,119	3,846					
Firm age	,223	,123	,125	1,812	,071	-,020	,466	,180	,127	,122	,953	1,050
Small ent.	-,397	,181	-,230	-2,198	,029	-,754	-,041	-,293	-,154	-,148	,411	2,434
Med. ent.	,093	,198	,050	,472	,638	-,297	,483	,253	,033	,032	,408	2,451
3 (Constant)	3,307	,198		16,716	,000	2,917	3,698					
Firm age	,282	,125	,158	2,266	,025	,037	,528	,180	,159	,151	,911	1,097
Small ent.	-,435	,180	-,252	-2,421	,016	-,789	-,081	-,293	-,170	-,161	,407	2,455
Med. ent.	,062	,196	,033	,319	,750	-,324	,449	,253	,023	,021	,406	2,463
P_kibs	,271	,119	,156	2,280	,024	,037	,505	,095	,160	,152	,945	1,059
4 (Constant)	3,482	,165		21,042	,000	3,156	3,809					
Firm age	,243	,103	,136	2,358	,019	,040	,446	,180	,166	,129	,906	1,104
Small ent.	-,407	,155	-,236	-2,618	,010	-,714	-,100	-,293	-,184	-,144	,370	2,702
Med. ent.	-,053	,166	-,028	-,322	,748	-,380	,274	,253	-,023	-,018	,386	2,589
P_kibs	,055	,103	,032	,541	,589	-,147	,258	,095	,039	,030	,863	1,159
MOcen	,154	,123	,099	1,248	,214	-,089	,397	,483	,089	,068	,477	2,098

LOcen	,518	,082	,481	6,325	,000	,357	,680	,569	,412	,347	,519	1,926
5 (Constant)	3,490	,166		21,003	,000	3,163	3,818					
Firm age	,244	,103	,137	2,366	,019	,041	,448	,180	,167	,130	,906	1,104
Small ent.	-,409	,156	-,237	-2,627	,009	-,716	-,102	-,293	-,185	-,144	,370	2,703
Med. ent.	-,053	,166	-,028	-,318	,751	-,380	,275	,253	-,023	-,017	,386	2,589
P_kibs	,061	,103	,035	,589	,557	-,142	,264	,095	,042	,032	,857	1,166
MOcen	,130	,129	,084	1,013	,312	-,123	,384	,483	,072	,056	,440	2,275
LOcen	,493	,091	,458	5,427	,000	,314	,672	,569	,362	,298	,424	2,359
MO_LOcen	-,038	,058	-,050	-,657	,512	-,152	,076	-,424	-,047	-,036	,516	1,938

a. Dependent Variable: Performance

Table 84 - Collinearity diagnostics (using mean-centered scales)

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions							
				(Constant)	Firm age	Small ent.	Med. ent.	P_kibs	MOcen	LOcen	MO_LOcen
1	1	1,815	1,000	,09	,09						
	2	,185	3,137	,91	,91						
2	1	2,685	1,000	,01	,04	,01	,01				
	2	1,012	1,629	,00	,00	,06	,17				
	3	,247	3,297	,03	,86	,07	,18				
	4	,056	6,910	,96	,10	,85	,63				
3	1	3,323	1,000	,01	,02	,01	,01	,02			
	2	1,025	1,800	,00	,01	,05	,18	,01			
	3	,416	2,827	,00	,30	,01	,01	,48			
	4	,182	4,271	,04	,53	,21	,26	,42			
	5	,053	7,916	,96	,14	,72	,54	,07			
4	1	3,329	1,000	,01	,02	,01	,01	,02	,00	,00	
	2	1,736	1,385	,00	,00	,00	,00	,00	,13	,14	
	3	,987	1,837	,00	,01	,04	,17	,01	,01	,02	
	4	,401	2,881	,00	,27	,01	,01	,40	,02	,12	

	5	,338	3,140	,00	,10	,01	,04	,01	,60	,59	
	6	,159	4,581	,05	,48	,19	,19	,51	,20	,08	
	7	,050	8,125	,94	,12	,74	,57	,04	,04	,05	
5	1	3,395	1,000	,01	,02	,01	,01	,02	,00	,00	,00
	2	2,291	1,217	,00	,00	,00	,00	,00	,06	,06	,06
	3	1,004	1,839	,00	,01	,05	,16	,01	,00	,00	,01
	4	,439	2,782	,00	,16	,01	,00	,23	,19	,01	,25
	5	,354	3,098	,00	,22	,00	,06	,14	,44	,02	,19
	6	,309	3,313	,00	,00	,00	,00	,04	,07	,81	,49
	7	,159	4,627	,05	,48	,19	,19	,51	,19	,06	,00
	8	,050	8,215	,94	,12	,74	,57	,04	,05	,03	,00

a. Dependent Variable: Performance

Table 85 - Model summary (using dummies)

Model Summary[f]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,180[a]	,032	,028	,83506	,032	6,730	1	201	,010	
2	,320[b]	,102	,089	,80834	,070	7,753	2	199	,001	
3	,354[c]	,125	,108	,79995	,023	5,197	1	198	,024	
4	,641[d]	,411	,393	,65977	,286	47,537	2	196	,000	
5	,643[e]	,414	,393	,65974	,003	1,016	1	195	,315	1,671

a. Predictors: (Constant), Firm age

b. Predictors: (Constant), Firm age, Small ent., Med. ent.

c. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs

d. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, LO, MO

e. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, LO, MO, LOhigh_MOhigh

f. Dependent Variable: Performance

Table 86 - Analysis of variance (using dummies)

ANOVA[f]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4,693	1	4,693	6,730	,010[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Residual	140,162	201	,697		
	Total	144,855	202			
2	Regression	14,825	3	4,942	7,563	,000[b]
	Residual	130,030	199	,653		
	Total	144,855	202			
3	Regression	18,151	4	4,538	7,091	,000[c]
	Residual	126,704	198	,640		
	Total	144,855	202			
4	Regression	59,537	6	9,923	22,795	,000[d]
	Residual	85,318	196	,435		
	Total	144,855	202			
5	Regression	59,979	7	8,568	19,686	,000[e]
	Residual	84,876	195	,435		
	Total	144,855	202			

a. Predictors: (Constant), Firm age

b. Predictors: (Constant), Firm age, Small ent., Med. ent.

c. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs

d. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, LO, MO

e. Predictors: (Constant), Firm age, Small ent., Med. ent., P_kibs, LO, MO, LOhigh_MOhigh

f. Dependent Variable: Performance

Table 87 - Coefficients (using dummies)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	3,204	,101		31,637	,000	3,004	3,403					
Firm age	,322	,124	,180	2,594	,010	,077	,567	,180	,180	,180	1,000	1,000
2 (Constant)	3,482	,184		18,894	,000	3,119	3,846					
Firm age	,223	,123	,125	1,812	,071	-,020	,466	,180	,127	,122	,953	1,050
Small ent.	-,397	,181	-,230	-2,198	,029	-,754	-,041	-,293	-,154	-,148	,411	2,434
Med. ent.	,093	,198	,050	,472	,638	-,297	,483	,253	,033	,032	,408	2,451

3 (Constant)	3,307	,198		16,716	,000	2,917	3,698					
Firm age	,282	,125	,158	2,266	,025	,037	,528	,180	,159	,151	,911	1,097
Small ent.	-,435	,180	-,252	-2,421	,016	-,789	-,081	-,293	-,170	-,161	,407	2,455
Med. ent.	,062	,196	,033	,319	,750	-,324	,449	,253	,023	,021	,406	2,463
P_kibs	,271	,119	,156	2,280	,024	,037	,505	,095	,160	,152	,945	1,059
4 (Constant)	,581	,393		1,480	,140	-,193	1,356					
Firm age	,243	,103	,136	2,358	,019	,040	,446	,180	,166	,129	,906	1,104
Small ent.	-,407	,155	-,236	-2,618	,010	-,714	-,100	-,293	-,184	-,144	,370	2,702
Med. ent.	-,053	,166	-,028	-,322	,748	-,380	,274	,253	-,023	-,018	,386	2,589
P_kibs	,055	,103	,032	,541	,589	-,147	,258	,095	,039	,030	,863	1,159
MO	,154	,123	,099	1,248	,214	-,089	,397	,483	,089	,068	,477	2,098
LO	,518	,082	,481	6,325	,000	,357	,680	,569	,412	,347	,519	1,926
5 (Constant)	,355	,452		,786	,433	-,536	1,247					
Firm age	,240	,103	,134	2,323	,021	,036	,443	,180	,164	,127	,905	1,105
Small ent.	-,416	,156	-,241	-2,671	,008	-,723	-,109	-,293	-,188	-,146	,369	2,711
Med. ent.	-,061	,166	-,032	-,366	,715	-,388	,267	,253	-,026	-,020	,385	2,594
P_kibs	,067	,103	,039	,651	,516	-,136	,271	,095	,047	,036	,852	1,174
MO	,215	,137	,138	1,564	,119	-,056	,485	,483	,111	,086	,384	2,602
LO	,528	,082	,490	6,398	,000	,365	,690	,569	,417	,351	,513	1,950
LOhigh_MOhigh	-,126	,125	-,073	-1,008	,315	-,374	,121	,294	-,072	-,055	,569	1,758

a. Dependent Variable: Performance

Table 88 - Collinearity diagnostics (using dummies)

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions							
				(Constant)	Firm age	Small ent.	Med. ent.	P_kibs	MO	LO	LOhigh_ MOhigh
1	1	1,815	1,000	,09	,09						
	2	,185	3,137	,91	,91						

2	1	2,685	1,000	,01	,04	,01	,01				
	2	1,012	1,629	,00	,00	,06	,17				
	3	,247	3,297	,03	,86	,07	,18				
	4	,056	6,910	,96	,10	,85	,63				
3	1	3,323	1,000	,01	,02	,01	,01	,02			
	2	1,025	1,800	,00	,01	,05	,18	,01			
	3	,416	2,827	,00	,30	,01	,01	,48			
	4	,182	4,271	,04	,53	,21	,26	,42			
	5	,053	7,916	,96	,14	,72	,54	,07			
4	1	5,241	1,000	,00	,01	,00	,00	,01	,00	,00	
	2	1,026	2,261	,00	,01	,05	,17	,00	,00	,00	
	3	,416	3,549	,00	,29	,01	,01	,44	,00	,00	
	4	,200	5,117	,00	,64	,06	,10	,48	,00	,00	
	5	,097	7,364	,01	,04	,68	,62	,03	,01	,02	
	6	,014	19,172	,49	,02	,04	,01	,00	,00	,54	
	7	,006	30,165	,50	,00	,16	,08	,03	,98	,44	
5	1	5,728	1,000	,00	,01	,00	,00	,01	,00	,00	,01
	2	1,029	2,359	,00	,01	,05	,16	,00	,00	,00	,00
	3	,575	3,155	,00	,09	,01	,01	,04	,00	,00	,39
	4	,366	3,954	,00	,21	,00	,05	,43	,00	,00	,19
	5	,200	5,353	,00	,63	,06	,09	,50	,00	,00	,00
	6	,084	8,250	,01	,05	,76	,63	,00	,01	,02	,11
	7	,012	21,498	,30	,01	,00	,00	,00	,02	,77	,10
	8	,005	34,949	,68	,00	,12	,06	,01	,97	,21	,20

a. Dependent Variable: Performance

Appendix 5: SPSS Outputs of Simple Regression (Relative to VII.1.1. Simple regression analysis)

A. Simple regression analysis with Entrepreneurial Orientation as predictor variable and firm performance as outcome variable

Table 89 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,099[a]	,010	,005	,84664

a. Predictors: (Constant), EO

Table 90 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,456	1	1,456	2,032	,156[a]
	Residual	146,945	205	,717		
	Total	148,401	206			

a. Predictors: (Constant), EO

b. Dependent Variable: Performance

Table 91 - Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,013	,279		10,792	,000
	EO	,128	,090	,099	1,425	,156

a. Dependent Variable: Performance

A.1. EO-Innovativeness

Table 92 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,089[a]	,008	,003	,84742

a. Predictors: (Constant), EOinnov

Table 93 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,186	1	1,186	1,652	,200[a]
	Residual	147,215	205	,718		
	Total	148,401	206			

a. Predictors: (Constant), EOinnov

b. Dependent Variable: Performance

Table 94 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,116	,230		13,535	,000
	EOinnov	,096	,075	,089	1,285	,200

a. Dependent Variable: Performance

A.2. EO-Proactiveness

Table 95 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,347[a]	,121	,116	,79782

a. Predictors: (Constant), EOproact

Table 96 – Analysis of variance summary of the model

ANOVA[b]

Model	Sum of Squares	df	Mean Square	F	Sig.

1 Regression	17,916	1	17,916	28,146	,000[a]
Residual	130,485	205	,637		
Total	148,401	206			

a. Predictors: (Constant), EOproact

b. Dependent Variable: Performance

Table 97 – Coefficients

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2,230	,228		9,792	,000
EOproact	,355	,067	,347	5,305	,000

a. Dependent Variable: Performance

A.3. EO-Risk-Taking

Table 98 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,069[a]	,005	,000	,84881

a. Predictors: (Constant), EOrisk

Table 99 – Analysis of variance summary of the model

ANOVA[b]

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	,702	1	,702	,974	,325[a]
Residual	147,699	205	,720		
Total	148,401	206			

a. Predictors: (Constant), EOrisk

b. Dependent Variable: Performance

Table 100 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,584	,194		18,471	,000
	EOrisk	-,065	,065	-,069	-,987	,325

a. Dependent Variable: Performance

B. Simple regression analysis with Market Orientation as predictor variable and firm performance as outcome variable

Table 101 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,484[a]	,234	,231	,74442

a. Predictors: (Constant), MO

Table 102 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34,797	1	34,797	62,792	,000[a]
	Residual	113,604	205	,554		
	Total	148,401	206			

a. Predictors: (Constant), MO

b. Dependent Variable: Performance

Table 103 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	,435	,378		1,152	,251
	MO	,759	,096	,484	7,924	,000

a. Dependent Variable: Performance

C. Simple regression analysis with Learning Orientation as predictor variable and firm performance as outcome variable

Table 104 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,570[a]	,325	,322	,70178

a. Predictors: (Constant), LO

Table 105 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48,099	1	48,099	97,665	,000[a]
	Residual	99,976	203	,492		
	Total	148,075	204			

a. Predictors: (Constant), LO

b. Dependent Variable: Performance

Table 106 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,659	,282		2,337	,020
	LO	,620	,063	,570	9,883	,000

a. Dependent Variable: Performance

D. Simple regression analysis with Dynamic Capabilities as predictor variable and firm performance as outcome variable

Table 107 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,444[a]	,197	,193	,76228

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,444[a]	,197	,193	,76228

a. Predictors: (Constant), DC

Table 108 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29,281	1	29,281	50,392	,000[a]
	Residual	119,120	205	,581		
	Total	148,401	206			

a. Predictors: (Constant), DC

b. Dependent Variable: Performance

Table 109 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,763	,104		26,457	,000
	DC	,285	,040	,444	7,099	,000

a. Dependent Variable: Performance

E. Interaction between Entrepreneurial Orientation-proactiveness and Dynamic Capabilities to explain firm performance

Table 110 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,457[a]	,209	,201	,75873

a. Predictors: (Constant), EOproact_DC, EOproact

Table 111 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30,964	2	15,482	26,894	,000[a]
	Residual	117,437	204	,576		
	Total	148,401	206			

a. Predictors: (Constant), EOproact_DC, EOproact

b. Dependent Variable: Performance

Table 112 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,680	,236		11,341	,000
	EOproact	,067	,088	,066	,765	,445
	EOproact_DC	,064	,013	,409	4,761	,000

a. Dependent Variable: Performance

F. Interaction between Market Orientation and Dynamic Capabilities to explain firm performance

Table 113 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,560[a]	,314	,307	,70650

a. Predictors: (Constant), MO_DC, MO

Table 114 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46,575	2	23,288	46,655	,000[a]
	Residual	101,826	204	,499		
	Total	148,401	206			

a. Predictors: (Constant), MO_DC, MO

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46,575	2	23,288	46,655	,000[a]
	Residual	101,826	204	,499		
	Total	148,401	206			

b. Dependent Variable: Performance

Table 115 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,854	,369		2,315	,022
	MO	,543	,101	,346	5,366	,000
	MO_DC	,047	,010	,314	4,858	,000

a. Dependent Variable: Performance

G. Interaction between Learning Orientation and Dynamic Capabilities to explain firm performance

Table 116– Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,607[a]	,368	,362	,68047

a. Predictors: (Constant), LO_DC, LO

Table 117 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	54,542	2	27,271	58,896	,000[a]
	Residual	93,533	202	,463		
	Total	148,075	204			

a. Predictors: (Constant), LO_DC, LO

b. Dependent Variable: Performance

Table 118 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,924	,283		3,270	,001
	LO	,484	,071	,445	6,837	,000
	LO_DC	,032	,009	,243	3,730	,000

a. Dependent Variable: Performance

H. Simple regression analysis with Entrepreneurial Orientation as predictor variable and Dynamic Capabilities as outcome variable

Table 119 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,329[a]	,108	,104	1,26157

a. Predictors: (Constant), EO

Table 120 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40,043	1	40,043	25,160	,000[a]
	Residual	329,452	207	1,592		
	Total	369,494	208			

a. Predictors: (Constant), EO

b. Dependent Variable: DC

Table 121 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,178	,416		,428	,669

EO	,673	,134	,329	5,016	,000

a. Dependent Variable: DC

H.1. Simple regression analysis with Entrepreneurial Orientation-innovativeness as predictor variable and Dynamic Capabilities as outcome variable

Table 122 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,353[a]	,124	,120	1,25022

a. Predictors: (Constant), EOinnov

Table 123 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45,941	1	45,941	29,392	,000[a]
	Residual	323,553	207	1,563		
	Total	369,494	208			

a. Predictors: (Constant), EOinnov

b. Dependent Variable: DC

Table 124 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,440	,339		1,297	,196
	EOinnov	,596	,110	,353	5,421	,000

a. Dependent Variable: DC

H.2. Simple regression analysis with Entrepreneurial Orientation-proactiveness as predictor variable and Dynamic Capabilities as outcome variable

Table 125– Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,414[a]	,171	,167	1,21623

a. Predictors: (Constant), EOproact

Table 126 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63,295	1	63,295	42,789	,000[a]
	Residual	306,200	207	1,479		
	Total	369,494	208			

a. Predictors: (Constant), EOproact

b. Dependent Variable: DC

Table 127 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,014	,347		,041	,967
	EOproact	,667	,102	,414	6,541	,000

a. Dependent Variable: DC

H.3. Simple regression analysis with Entrepreneurial Orientation-risk-taking as predictor variable and Dynamic Capabilities as outcome variable

Table 128 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,146[a]	,021	,017	1,32173

a. Predictors: (Constant), EOrisk

Table 129 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7,871	1	7,871	4,505	,035[a]
	Residual	361,624	207	1,747		
	Total	369,494	208			

a. Predictors: (Constant), EOrisk

b. Dependent Variable: DC

Table 130 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,606	,302		5,316	,000
	EOrisk	,216	,102	,146	2,123	,035

a. Dependent Variable: DC

I. Simple regression analysis with Market Orientation as predictor variable and Dynamic Capabilities as outcome variable

Table 131 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,280[a]	,078	,074	1,28271

a. Predictors: (Constant), MO

Table 132 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28,907	1	28,907	17,569	,000[a]
	Residual	340,587	207	1,645		
	Total	369,494	208			

a. Predictors: (Constant), MO

b. Dependent Variable: DC

Table 133 - Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,475	,648		-,733	,465
	MO	,688	,164	,280	4,192	,000

a. Dependent Variable: DC

J. Simple regression analysis with Learning Orientation as predictor variable and Dynamic Capabilities as outcome variable

Table 134 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,408[a]	,167	,163	1,21467

a. Predictors: (Constant), LO

Table 135 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	60,574	1	60,574	41,056	,000[a]
	Residual	302,461	205	1,475		
	Total	363,035	206			

a. Predictors: (Constant), LO

b. Dependent Variable: DC

Table 136 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,843	,488		-1,729	,085
	LO	,694	,108	,408	6,407	,000

a. Dependent Variable: DC

K. Simple regression analysis with Entrepreneurial Orientation as predictor variable and Market Orientation as outcome variable

Table 137 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,068[a]	,005	,000	,542

a. Predictors: (Constant), EO

Table 138 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,282	1	,282	,960	,328[a]
	Residual	60,777	207	,294		
	Total	61,059	208			

a. Predictors: (Constant), EO

b. Dependent Variable: MO

Table 139 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,741	,179		20,951	,000
	EO	,056	,058	,068	,980	,328

a. Dependent Variable: MO

L. Simple regression analysis with Learning Orientation as predictor variable and Market Orientation as outcome variable

Table 140 – Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	,675[a]	,456	,453	,402

a. Predictors: (Constant), LO

Table 141 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27,747	1	27,747	171,735	,000[a]
	Residual	33,122	205	,162		
	Total	60,869	206			

a. Predictors: (Constant), LO

b. Dependent Variable: MO

Table 142 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,832	,161		11,354	,000
	LO	,470	,036	,675	13,105	,000

a. Dependent Variable: MO

M. Simple regression analysis with Learning Orientation as predictor variable and Entrepreneurial Orientation as outcome variable

Table 143– Summary of the model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,010[a]	,000	-,005	,65597

a. Predictors: (Constant), LO

Table 144 – Analysis of variance summary of the model

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,009	1	,009	,020	,888[a]

	Residual	88,210	205	,430		
	Total	88,219	206			

a. Predictors: (Constant), LO

b. Dependent Variable: EO

Table 145 – Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,072	,263		11,665	,000
	LO	-,008	,058	-,010	-,141	,888

a. Dependent Variable: EO

Appendix 6: SPSS Outputs of Multiple Regression (Relative to VII.1.2. Multiple regression analysis)

Table 146– Total effects on firm performance (considering the whole sample)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	3,204	,101		31,637	,000	3,004	3,403					
Firm age	,322	,124	,180	2,594	,010	,077	,567	,180	,180	,180	1,000	1,000
2 (Constant)	3,482	,184		18,894	,000	3,119	3,846					
Firm age	,223	,123	,125	1,812	,071	-,020	,466	,180	,127	,122	,953	1,050
Small ent.	-,397	,181	-,230	-2,198	,029	-,754	-,041	-,293	-,154	-,148	,411	2,434
Med. ent.	,093	,198	,050	,472	,638	-,297	,483	,253	,033	,032	,408	2,451
3 (Constant)	3,307	,198		16,716	,000	2,917	3,698					
Firm age	,282	,125	,158	2,266	,025	,037	,528	,180	,159	,151	,911	1,097
Small ent.	-,435	,180	-,252	-2,421	,016	-,789	-,081	-,293	-,170	-,161	,407	2,455
Med. ent.	,062	,196	,033	,319	,750	-,324	,449	,253	,023	,021	,406	2,463
P_kibs	,271	,119	,156	2,280	,024	,037	,505	,095	,160	,152	,945	1,059
4 (Constant)	2,777	,365		7,611	,000	2,058	3,497					
Firm age	,332	,127	,185	2,608	,010	,081	,583	,180	,183	,173	,865	1,156
Small ent.	-,404	,180	-,234	-2,249	,026	-,758	-,050	-,293	-,158	-,149	,403	2,479
Med. ent.	,070	,195	,037	,358	,721	-,315	,455	,253	,025	,024	,406	2,464
P_kibs	,297	,119	,171	2,491	,014	,062	,532	,095	,175	,165	,930	1,076
EO	,152	,088	,118	1,726	,086	-,022	,325	,092	,122	,114	,933	1,072
5 (Constant)	,323	,495		,653	,515	-,653	1,299					
Firm age	,263	,116	,147	2,270	,024	,035	,491	,180	,160	,136	,858	1,166
Small ent.	-,174	,166	-,101	-1,049	,295	-,502	,153	-,293	-,075	-,063	,386	2,591
Med. ent.	,166	,177	,088	,936	,350	-,184	,515	,253	,067	,056	,403	2,480

P_kibs	,069	,113	,040	,609	,544	-,154	,292	,095	,043	,036	,845	1,184
EO	,108	,080	,084	1,358	,176	-,049	,266	,092	,097	,081	,926	1,079
MO	,667	,100	,429	6,661	,000	,469	,864	,483	,430	,399	,863	1,159
6 (Constant)	,146	,451		,323	,747	-,743	1,035					
Firm age	,290	,105	,162	2,758	,006	,083	,498	,180	,194	,150	,857	1,167
Small ent.	-,388	,155	-,225	-2,507	,013	-,693	-,083	-,293	-,177	-,136	,369	2,713
Med. ent.	-,053	,165	-,028	-,323	,747	-,378	,272	,253	-,023	-,018	,386	2,589
P_kibs	,084	,103	,049	,819	,414	-,119	,287	,095	,059	,045	,844	1,185
EO	,140	,073	,109	1,925	,056	-,003	,284	,092	,137	,105	,922	1,084
MO	,129	,123	,083	1,047	,297	-,114	,372	,483	,075	,057	,471	2,121
LO	,529	,082	,491	6,484	,000	,368	,690	,569	,421	,353	,517	1,935
7 (Constant)	,179	,439		,409	,683	-,686	1,044					
Firm age	,303	,102	,170	2,961	,003	,101	,506	,180	,208	,157	,855	1,169
Small ent.	-,399	,151	-,231	-2,652	,009	-,696	-,102	-,293	-,187	-,140	,368	2,715
Med. ent.	-,058	,160	-,031	-,364	,716	-,374	,258	,253	-,026	-,019	,386	2,590
P_kibs	,100	,100	,058	1,001	,318	-,097	,298	,095	,072	,053	,842	1,187
EO	,140	,071	,109	1,983	,049	,001	,280	,092	,141	,105	,922	1,084
MO	,115	,120	,074	,962	,337	-,121	,352	,483	,069	,051	,471	2,123
LO	,530	,079	,492	6,679	,000	,374	,687	,569	,432	,354	,517	1,935
RES_1 Unstandardized Residual	,145	,042	,184	3,469	,001	,063	,227	,184	,242	,184	,996	1,004

a. Dependent Variable: Performance

Table 147 – Direct effects on firm performance (considering the whole sample)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	3,204	,101		31,637	,000	3,004	3,403					

Firm age	,322	,124	,180	2,594	,010	,077	,567	,180	,180	,180	1,000	1,000
2 (Constant)	3,482	,184		18,894	,000	3,119	3,846					
Firm age	,223	,123	,125	1,812	,071	-,020	,466	,180	,127	,122	,953	1,050
Small ent.	-,397	,181	-,230	-2,198	,029	-,754	-,041	-,293	-,154	-,148	,411	2,434
Med. ent.	,093	,198	,050	,472	,638	-,297	,483	,253	,033	,032	,408	2,451
3 (Constant)	3,307	,198		16,716	,000	2,917	3,698					
Firm age	,282	,125	,158	2,266	,025	,037	,528	,180	,159	,151	,911	1,097
Small ent.	-,435	,180	-,252	-2,421	,016	-,789	-,081	-,293	-,170	-,161	,407	2,455
Med. ent.	,062	,196	,033	,319	,750	-,324	,449	,253	,023	,021	,406	2,463
P_kibs	,271	,119	,156	2,280	,024	,037	,505	,095	,160	,152	,945	1,059
4 (Constant)	2,777	,365		7,611	,000	2,058	3,497					
Firm age	,332	,127	,185	2,608	,010	,081	,583	,180	,183	,173	,865	1,156
Small ent.	-,404	,180	-,234	-2,249	,026	-,758	-,050	-,293	-,158	-,149	,403	2,479
Med. ent.	,070	,195	,037	,358	,721	-,315	,455	,253	,025	,024	,406	2,464
P_kibs	,297	,119	,171	2,491	,014	,062	,532	,095	,175	,165	,930	1,076
EO	,152	,088	,118	1,726	,086	-,022	,325	,092	,122	,114	,933	1,072
5 (Constant)	,323	,495		,653	,515	-,653	1,299					
Firm age	,263	,116	,147	2,270	,024	,035	,491	,180	,160	,136	,858	1,166
Small ent.	-,174	,166	-,101	-1,049	,295	-,502	,153	-,293	-,075	-,063	,386	2,591
Med. ent.	,166	,177	,088	,936	,350	-,184	,515	,253	,067	,056	,403	2,480
P_kibs	,069	,113	,040	,609	,544	-,154	,292	,095	,043	,036	,845	1,184
EO	,108	,080	,084	1,358	,176	-,049	,266	,092	,097	,081	,926	1,079
MO	,667	,100	,429	6,661	,000	,469	,864	,483	,430	,399	,863	1,159
6 (Constant)	,146	,451		,323	,747	-,743	1,035					
Firm age	,290	,105	,162	2,758	,006	,083	,498	,180	,194	,150	,857	1,167
Small ent.	-,388	,155	-,225	-2,507	,013	-,693	-,083	-,293	-,177	-,136	,369	2,713
Med. ent.	-,053	,165	-,028	-,323	,747	-,378	,272	,253	-,023	-,018	,386	2,589
P_kibs	,084	,103	,049	,819	,414	-,119	,287	,095	,059	,045	,844	1,185
EO	,140	,073	,109	1,925	,056	-,003	,284	,092	,137	,105	,922	1,084
MO	,129	,123	,083	1,047	,297	-,114	,372	,483	,075	,057	,471	2,121

Model	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
LO	,529	,082	,491	6,484	,000	,368	,690	,569	,421	,353	,517	1,935
7 (Constant)	,568	,455		1,249	,213	-,329	1,466					
Firm age	,303	,102	,169	2,953	,004	,100	,505	,180	,207	,156	,856	1,169
Small ent.	-,409	,151	-,237	-2,714	,007	-,706	-,112	-,293	-,191	-,144	,368	2,718
Med. ent.	-,143	,162	-,076	-,880	,380	-,463	,177	,253	-,063	-,047	,376	2,657
P_kibs	,041	,101	,024	,409	,683	-,158	,240	,095	,029	,022	,831	1,203
EO	,039	,077	,031	,516	,606	-,111	,190	,092	,037	,027	,790	1,266
MO	,145	,120	,094	1,213	,227	-,091	,382	,483	,087	,064	,471	2,124
LO	,427	,085	,396	5,040	,000	,260	,594	,569	,340	,267	,454	2,202
DC	,145	,042	,226	3,469	,001	,063	,227	,440	,242	,184	,661	1,513

a. Dependent Variable:
Performance

Table 148 – Total effects on firm performance (considering the sub-sample of T-KIBS: 78 cases)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
6 (Constant)	-1,029	,678		-1,517	,134	-2,381	,323					
Firm age	,621	,188	,280	3,303	,002	,246	,996	,180	,367	,270	,931	1,074
Small ent.	-,091	,238	-,051	-,383	,703	-,565	,383	-,124	-,046	-,031	,381	2,622
Med. ent.	-,044	,236	-,022	-,185	,854	-,514	,427	,128	-,022	-,015	,453	2,209
EO	,427	,115	,322	3,723	,000	,198	,656	,261	,407	,305	,898	1,113
MO	,190	,181	,135	1,052	,296	-,170	,551	,485	,125	,086	,406	2,464
LO	,439	,117	,460	3,759	,000	,206	,671	,544	,410	,308	,448	2,233
RES_1 Unstandardized Residual	,235	,070	,278	3,369	,001	,096	,374	,280	,374	,276	,987	1,013

a. Dependent Variable:
Performance

Table 149 – Direct effects on firm performance (considering the sub-sample of T-KIBS: 78 cases)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
6 (Constant)	-,603	,694		-,869	,388	-1,988	,781					
Firm age	,546	,187	,246	2,911	,005	,172	,920	,180	,329	,238	,935	1,069
Small ent.	-,018	,238	-,010	-,074	,941	-,491	,456	-,124	-,009	-,006	,382	2,617
Med. ent.	-,209	,242	-,108	-,866	,390	-,692	,273	,128	-,103	-,071	,431	2,322
EO	,282	,123	,212	2,294	,025	,037	,527	,261	,264	,188	,783	1,277
MO	,331	,183	,235	1,805	,075	-,035	,696	,485	,211	,148	,395	2,530
LO	,229	,131	,240	1,745	,085	-,033	,490	,544	,204	,143	,355	2,820
DC	,235	,070	,357	3,369	,001	,096	,374	,560	,374	,276	,597	1,675

a. Dependent Variable: Performance

Table 150 – Total effects on firm performance (considering the sub-sample of P-KIBS: 125 cases)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
6 (Constant)	,498	,585		,851	,396	-,661	1,657					
Firm age	,091	,119	,056	,766	,445	-,144	,326	,225	,071	,050	,816	1,225
Small ent.	-,616	,188	-,367	-3,283	,001	-,988	-,245	-,436	-,290	-,215	,344	2,909
Med. ent.	-,142	,206	-,078	-,690	,492	-,550	,266	,354	-,064	-,045	,339	2,949
EO	-,047	,085	-,037	-,548	,585	-,216	,122	-,014	-,051	-,036	,926	1,080
MO	,215	,159	,119	1,354	,178	-,100	,530	,477	,124	,089	,558	1,794
LO	,579	,108	,463	5,385	,000	,366	,792	,594	,446	,353	,582	1,719

Model	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
RES_2 Unstandardized Residual	,104	,050	,138	2,100	,038	,006	,203	,138	,191	,138	1,000	1,000

a. Dependent Variable: Performance

Table 151– Direct effects on firm performance (considering the sub-sample of P-KIBS: 125 cases)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
6 (Constant)	,835	,607		1,376	,172	-,367	2,036					
Firm age	,110	,119	,067	,924	,358	-,126	,346	,225	,085	,061	,812	1,232
Small ent.	-,635	,188	-,378	-3,376	,001	-1,007	-,262	-,436	-,298	-,221	,343	2,916
Med. ent.	-,192	,207	-,105	-,927	,356	-,602	,218	,354	-,085	-,061	,335	2,988
EO	-,119	,092	-,095	-1,297	,197	-,302	,063	-,014	-,119	-,085	,795	1,257
MO	,201	,159	,111	1,264	,209	-,114	,517	,477	,116	,083	,557	1,797
LO	,513	,112	,410	4,578	,000	,291	,735	,594	,390	,300	,536	1,866
DC	,104	,050	,164	2,100	,038	,006	,203	,339	,191	,138	,705	1,419

a. Dependent Variable: Performance

Table 152 – Total effects on firm performance (considering the sub-sample of micro-entreprises: 24 cases)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
6 (Constant)	-2,239	2,119		-1,057	,306	-6,710	2,232					
Firm age	,670	,359	,346	1,867	,079	-,087	1,427	,516	,413	,283	,672	1,489

P_kibs	,378	,288	,207	1,314	,206	-,229	,985	,326	,304	,199	,929	1,076
EO	,289	,245	,235	1,182	,253	-,227	,806	,094	,276	,179	,584	1,712
MO	,773	,690	,297	1,120	,278	-,683	2,230	,564	,262	,170	,327	3,054
LO	,260	,267	,305	,976	,343	-,303	,824	,567	,230	,148	,236	4,245
RES_1 Unstandardized Residual	,041	,211	,030	,197	,846	-,403	,486	,030	,048	,030	1,000	1,000

a. Dependent Variable: Performance

Table 153– Direct effects on firm performance (considering the sub-sample of micro-entreprises: 24 cases)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
6 (Constant)	-2,055	2,315		-,888	,387	-6,940	2,829					
Firm age	,694	,380	,358	1,828	,085	-,107	1,496	,516	,405	,277	,599	1,670
P_kibs	,363	,297	,199	1,224	,238	-,263	,990	,326	,285	,186	,872	1,147
EO	,241	,346	,196	,698	,494	-,488	,971	,094	,167	,106	,293	3,412
MO	,796	,700	,306	1,137	,271	-,681	2,273	,564	,266	,173	,318	3,141
LO	,210	,369	,246	,570	,576	-,568	,989	,567	,137	,086	,123	8,114
DC	,041	,211	,054	,197	,846	-,403	,486	,535	,048	,030	,305	3,276

a. Dependent Variable: Performance

Table 154 – Total effects on firm performance (considering the sub-sample of small-entreprises: 122 cases)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
6 (Constant)	-,095	,477		-,199	,842	-1,040	,850					

Firm age	,177	,133	,103	1,332	,186	-,086	,440	,070	,123	,094	,832	1,202
P_kibs	-,071	,145	-,040	-,493	,623	-,359	,216	,002	-,046	-,035	,746	1,340
EO	,123	,092	,097	1,333	,185	-,060	,306	,132	,123	,094	,939	1,064
MO	,071	,165	,049	,431	,668	-,256	,399	,472	,040	,030	,383	2,613
LO	,595	,112	,570	5,298	,000	,372	,817	,611	,443	,374	,431	2,322
RES_1 Unstandardized Residual	,137	,053	,182	2,571	,011	,031	,243	,197	,233	,181	,991	1,009

a. Dependent Variable:
Performance

Table 155 – Direct effects on firm performance (considering the sub-sample of small-entreprises: 122 cases)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
6 (Constant)	,186	,492		,379	,705	-,788	1,161					
Firm age	,180	,133	,105	1,354	,178	-,083	,443	,070	,125	,096	,831	1,204
P_kibs	-,158	,146	-,089	-1,081	,282	-,448	,132	,002	-,100	-,076	,733	1,365
EO	,041	,098	,032	,415	,679	-,153	,234	,132	,039	,029	,838	1,193
MO	,109	,165	,075	,660	,510	-,218	,436	,472	,061	,047	,384	2,607
LO	,502	,117	,481	4,281	,000	,269	,734	,611	,371	,302	,395	2,530
DC	,137	,053	,215	2,571	,011	,031	,243	,403	,233	,181	,712	1,404

a. Dependent Variable:
Performance

Table 156 – Total effects on firm performance (considering the sub-sample of medium-entreprises: 57 cases)

Coefficients[a]

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	95% Confidence Interval for B	Correlations	Collinearity Statistics

	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
6 (Constant)	,972	,934		1,040	,303	-,904	2,848					
Firm age	,147	,232	,084	,633	,530	-,319	,612	,051	,089	,069	,676	1,480
P_kibs	,207	,181	,154	1,144	,258	-,157	,571	,347	,160	,124	,655	1,526
EO	-,066	,154	-,058	-,430	,669	-,375	,243	-,136	-,061	-,047	,640	1,562
MO	,233	,192	,166	1,214	,231	-,152	,618	,383	,169	,132	,630	1,588
LO	,395	,200	,309	1,979	,053	-,006	,796	,451	,269	,215	,485	2,061
RES_1 Unstandardized Residual	,241	,070	,374	3,441	,001	,100	,381	,374	,438	,374	1,000	1,000

a. Dependent Variable: Performance

Table 157 – Direct effects on firm performance (considering the sub-sample of medium-entreprises: 57 cases)

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
6 (Constant)	2,019	,982		2,055	,045	,046	3,992					
Firm age	,008	,235	,005	,034	,973	-,464	,480	,051	,005	,004	,656	1,524
P_kibs	,220	,181	,163	1,215	,230	-,144	,584	,347	,169	,132	,655	1,527
EO	-,294	,168	-,260	-1,756	,085	-,631	,042	-,136	-,241	-,191	,540	1,851
MO	,286	,192	,204	1,487	,143	-,100	,673	,383	,206	,162	,626	1,598
LO	,154	,212	,120	,726	,471	-,271	,579	,451	,102	,079	,432	2,315
DC	,241	,070	,445	3,441	,001	,100	,381	,413	,438	,374	,706	1,416

a. Dependent Variable: Performance