Università degli Studi di Padova

FACOLTA' DI SCIENZE STATISTICHE

Corso di Laurea Specialistica in Scienze Statistiche, Economiche, Finanziarie ed Aziendali

TESI DI LAUREA

FIRM GROWTH AND PROFITABILITY: WHICH COMES FIRST?

Relatore:
Prof. Andrea Furlan

Correlatore:
Prof. Adriano Paggiaro

<div align="right">

Candidato:
Matteo Sambugaro
Matricola 604256

</div>

Anno Accademico 2010-2011

INDEX

INTRODUCTION

This thesis talks about the relationship between firm growth and firm performance.

A growing firm is almost universally considered as a successful company. Before the financial crisis in 2008, this common belief was shared amongst researchers, practitioners and policy-makers alike. Growth was considered a key factor in order to obtain above-average performances. The recent financial crisis -just to mention the most recent evidence- has however shown that high growth might also create numerous problems and challenges.

The instability that followed -and somehow still follows- the crack of Lehman Brothers in September 2008, has lead, amongst all the rest, to re-evaluate the relationship between firm growth and firm success.

Before the financial crisis, most businesses could coast along and rely on their credit lines to make up for shortfalls in sales. The goal was in most cases to grow. For the firm, slumping quarterly revenues and rising expenses could be carried forward by financial wizardry and leveraging a balance sheet.

While the lessons of doing business without credit and cutting expenses to the bone have been (hopefully) learned, how can one grow a business back to where it was and forward after the financial crisis? What is the best strategy to follow?

In trying to answer these questions, it is important to note that the financial crisis is not the sole responsible for poor firm performances. This thesis suggests the cause is more likely to lie in company strategy. In fact, who blames the financial crisis and the economic slowdown for poor performances should consider that even in good times just 1 out of 10 firms reaches high performances (Zook and Rogers, 2001).

The research question this thesis tries to answer is therefore the following: *What is the best strategy to achieve high overall firm performance?*

The thesis is organized as follows.

Chapter 1 introduces the concept of firm growth. It also summarizes the past literature and presents recent development on this topic. In particular, three different approaches

are discussed: the "One-dimensional" approach, the "Idiosyncratic" approach and, lastly, the "Multi-dimensional" approach.

Chapter 2 examines the issue of profitable growth. Past literature review suggests that value of growth for the success of firms is viewed in two conflicting ways. On the one hand, the first perspective maintains that firm growth is the precursor to the achievement of a sustainable competitive advantage and profitability. On the other hand, the second perspective claims that growth should not be the input to strategic planning but the outcome of a sound investment strategy. That is, managers should make a fundamental shift in their strategic orientation from "growth first, profitability later" to "profitability first, growth later". Chapter 2 also presents the Resource-Based View. This theory is of fundamental importance for this thesis because it provides the theoretical lenses on which the entire work is based upon. Chapter 3 introduces the sample and the research methodology. Chapter 4 deals with the actual analysis. The logistic regression are therefore presented and commented. Chapter 5 discusses the results and Chapter 6 outlines the main changes made with respect to previous work and by presenting several implications. The final chapter draws the conclusion to the whole thesis.

CHAPTER 1

LITERATURE REVIEW

In the following sections a review of the most important growth theories is presented. Although there is a tendency to portray firm growth as more or less universally favorable, researchers and practitioners have not come yet to an agreement on how firms undertake their processes of growth. This thesis discusses three different streams of thought: the *one-dimensional* approach, the *idiosyncratic* approach and the most recent *multidimensional* approach.

While the following review is not meant to be complete (it would be almost impossible to summarize more than 50 years of firm growth theories), it is presented in order to create the context in which further analyses will take place.

1.1 One-dimensional approach: "Life-cycle" theory

This theory suggests that organizations grow and develop according to a sequence of predetermined stages, each of which follows the previous one in an incremental and progressive way. Also known as the "Stage of growth theory", this is without any doubts one of the most common theories of new business growth (Greiner, 1972; Churchill and Lewis, 1983; Hanks *et al.* 1994). "The life-cycle approach posits that just as humans pass through similar stages of physiological and psychological development from infancy to adulthood, so businesses evolve in predictable ways and encounter similar problems in their growth" (Bhidé, 2000, pg. 244). Organizations are therefore seen as they were biological organisms that grow following prefigured sequences of stages. This approach brings with it three main propositions about firm growth (Kimberly and Miles, 1980):

1. as in a growing organism, the growth process of an organization can be identified as a sequence of different "stages";

2. as in a growing organism, the sequence and order in which a growing organization undergoes these recognizable stages is predetermined and thus predictable;

3. as in growing organisms that develop similarly to its own kind, all organizations develop according to pre-defined rules that bring them across different stages.

An early and probably the most influential contribution to the development of this theory is made by Greiner (1972). The author posits that throughout their lives, firms follow five growth stages and that every stage ends up in revolutionary period (a period of substantial turmoil in the organization life). The five growth stages are:

1. growth through *creativity*; this period ends by a *leadership* crisis;

2. growth through *direction*, broken off by a crisis of *autonomy*;

3. growth through *delegation*, followed by a *control* crisis;

4. growth through *coordination*, broken off by a *red tape* crisis (bureaucracy);

5. growth through *collaboration*; this period ends by an *internal growth* crisis.

In a more recent thesis, Greiner (1998) restates the crisis associated to the last stage by arguing that this is triggered by the impossibility to find internal solutions and resources rather than a "psychological" saturation of the human resources. The author also adds a sixth phase to his growth phases model suggesting that further growth can only come by developing partnerships with complementary organizations and by relying on these inter-firm relationships to get access to new resources. Figure 1 shows a visual representation of Greiner's complete growth model.
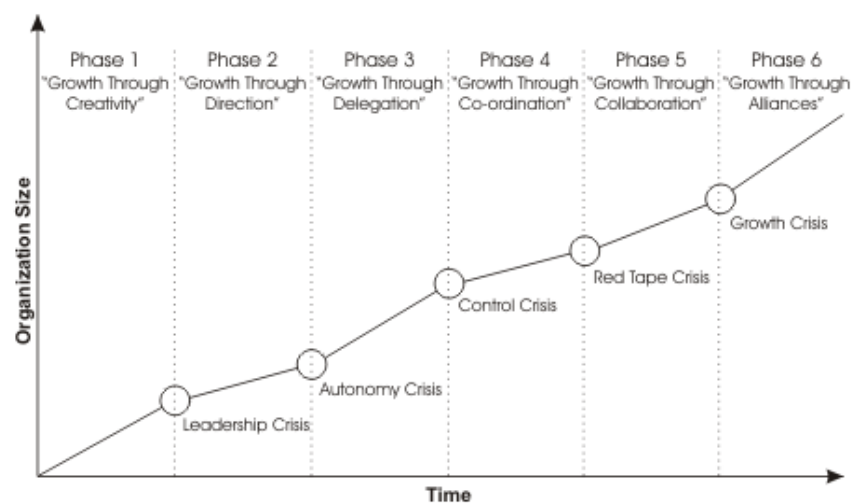

Figure 1: The "Greiner Curve"

Furthermore, the author maintains that each growth stage is described by five different parameters: management, focus, organizational structure, top management style, control system and management reward emphasis.

Although being considered as an important baseline model in the field, Greiner's model along with other life-cycle stage models produced during the '70s remain vague and general, making application to specific cases difficult (Hanks *et al.*, 1993). During the following decades many new models of firm life-cycle growth based on empirical studies have been proposed. Hanks *et al.* (1993) compare ten life-cycle models produced until 1993. Three of the models (Miller and Friesen, 1984; Quinn and Cameron, 1983; Smith *et al.* 1985) were chosen because of their attempt to summarize several models and to achieve some synthesis among competing life-cycle models. Five other models (Adizes, 1989; Churchill and Lewis, 1983; Flamholtz, 1986; Scott and Bruce, 1987; Kazanjian, 1988) were included because of some elements of innovation. Two more models were also included in the analysis: Galbraith (1982), whose model focused on high-technology firms and Greiner (1972) because of its recognized relevance. Hanks *et al.* (1993) compare and contrast these models in terms of the number, nature and order of stages they entail, and the contextual and structural dimensions of business organisation they contemplate. Even though they have found a reasonably consistent pattern of organization growth as firms move from an early stage to a late stage of maturity, the authors have found no agreement upon the number and nature of the stages. In their thesis the authors also develop a new model whose growth stages are not defined *a priori*, but are created from a cluster analysis conducted on a sample of 126 high-technology firms. The authors describe the growth process as a sequence of four different stages:

1) start-up stage
2) expansion stage
3) maturity stage
4) diversification stage

Despite the fact that their approach has considerable intuitive appeal, the assumptions underpinning the organismic metaphor have clashed with the heterogeneity of actual firm growth processes.

Similar to Hanks *et al.* (1993), several subsequent thesiss have tried to shed light on life-cycle models. For instance, Phelps *et al.* (2007) analyze 33 different life-cycle models published between 1967 and 2003. Lichtestein *et al.* (2007) have found an even higher number of different models. According to their thesis, 63 different models have been developed between 1960 and 1996. These thesiss confirm that there is no consensus regarding the number of stages; the majority of models include three, four or five stages; most of the rest have between six and eleven stages. Also, researchers do not share yet the same believes on the way organizations move from one stage to the other and on the reasons firm are doing it.

To sum up, after four decades of efforts, the life-cycle approach has not yet come to an agreement on *what* a stage represents, *how many* stages there are, and *why* these stage transitions take place.

Despite this disconfirming evidence, however, new stages models continue to appear in the management literature and in new textbooks.

1.2 Idiosyncratic approach

During the '90s a new stream of thought spreads among management scholars (Merz *et al.*, 1994; Garnsey, 1998; McMahon, 1998; Aldrich, 1999; Bhidé, 2000; Dobbs and Hamilton, 2007). Questioning whether it is possible to model the growth of companies, the new philosophy is in clear contrast with the life-cycle theory. Instead of considering firm growth as a combination of sequential well-defined stages that the firm needs to go through in order to get bigger, the *idiosyncratic* approach maintains that the growth of a firm over a period of time is contingent on the interaction of a number of internal and external forces. Since every firm is somehow different from any other one, this approach argues that the nature and timing of a firm's growth is a resultant of its own unique circumstances. Growth is therefore too complex to be reduced to a universal sequence of stages. Because of this heterogeneity amongst firms there is therefore no model or sequence of stages to be observed (Vinnell and Hamilton, 1999).

1.3 Multi-dimensional approach

This recent stream of thought maintains that firm growth is a multidimensional phenomenon. In order to model the growth of organizations in a manner that can be useful for the study of growth management, it is necessary to abandon the one-dimensional approach of the life-cycle models. In fact, despite their diversity, all the stage models refer to firm growth exclusively as *size growth*. Consequently, this naturally leads to depict the growth process as a sequence of pre-determined stages and therefore causes the disagreement upon what the stages are and how many they are (Lichtenstein *et al.*, 2007). The *multidimensional* approach is somehow in line with the idiosyncratic approach. In fact, both these approaches aim at a more holistic view of growth that could overcome the one-dimensional, simplistic view of firm growth (Furlan and Grandinetti, 2011; Davidsson *et al.*, 2009; Canals, 2001). This most recent approach agrees on abandoning the belief that firm growth is just the growth of its size, and introduces two more firm growth dimensions: *relationship growth* and *capability growth*.

As for the life-cycle theory, a unique vision has been however not yet achieved. In the next sections a description of different multidimensional models is provided. First, the "hybrid model" by Wiklund and McKelvie (2010) is presented. Along with some other models, all relying on the "network perspective", it maintains that firm growth is a combination of *size growth* and *relationship growth*. Second, two models produced by Lockett *et al.* (2011) and Phelps *et al.* (2007) are presented. Based upon Penrose's (1959) Resource-based View theory, these authors consider firm's growth as a result of a link between the development of new resources and capabilities (i.e. *capabilities growth*) and the *size growth* of the firm itself. Singh *et al.* (2007) and Lorenzoni and Lipparini (1999) believe in a third approach. According to these authors, firm growth, especially the one of organizations seeking to increase their vertical integration, depends on the growth of both *capabilities* and *relationships*. Lastly, Furlan and Grandinetti (2011) advance a framework where firm growth is conceptualized as a three-dimension phenomenon involving all three types of growth described so far (i.e. *size growth*, *relationship growth*, and *capability growth*).

Prior to presenting these different multidimensional approaches, however, it is important to understand the dimensions these different theories are based upon. A

precise definition of what is it meant by *size growth*, *relationship growth* and *capability growth* is therefore presented.

1.3.1 The growth dimensions

Along with firm size growth, two more growth dimensions (i.e. relationship growth and capability growth) are hereafter described.

a) Size growth

Following the definition given by Furlan and Grandinetti (2011, pg. 7), size growth is here defined as "the broadening of the boundaries of the firm over a given period of time". Two different size growths can be distinguished: *internal* and *external* size growth (Penrose, 1959). The former occurs when organizations decide for investments that increase the size of existing firm units or through investments that aim at creating completely new units or subsidiaries; the latter mainly concerns with mergers or acquisitions.

b) Relationship growth

Relationship growth is here intended as the increase of the usage of external resources over a given period of time. According to Das and Teng (2000), external resources are assets (physical or otherwise) that a company is able to use only by creating a relationship with the firm that owns them. The more rare and critical these resources are, the more valuable is the relationship. Jarillo (1989) maintains that the use of external resources, conceptualized under the heading of "networks", is fundamental in order to achieve and sustain a competitive advantage. The importance of external resources and relationships is also stressed by Gulati *et al*. (2000), that define what they call "strategic networks" as a firm's set of relationships, both horizontal and vertical, with other organizations, being their suppliers, customers, competitors, or other entities. In their thesis, the authors claim that these strategic networks in which firms are embedded play an extremely important role in their conduct and performance. Beekman and Robinson

(2004) claim that the extent to which firms turn to external resources can vary by either increasing the value of already existing relationships or by creating completely new networks.

c) Capability growth

Capability growth is the development of new capabilities over a given period of time. A firm can acquire new capabilities by either undertaking an internal development or by turning towards the external environment and acquiring them on the market. The literature distinguishes between three different types of capabilities: *functional*, *relational* and *dynamic* capabilities.

Functional capabilities refer to "the abilities to effectively and efficiently carry out the core functions (operations, marketing and R&D) and the support functions (e.g. human resources management, accounting) of the firm" (Furlan and Grandinetti, 2011, pg. 8).

Relational capabilities are here meant as the firm's capability to create, develop, and make use of relationships with its business partners. This definition has been derived by combining the definitions of several authors. For instance, Dyer and Singh (1998) label *relational capability* as the relation-building skills that are necessary to employ effective governance mechanisms, make relation-specific investments, or develop knowledge-sharing routines. Lorenzoni and Lipparini (1999) regard *relational capability* as the ability to successfully manage the existing network of relationships. Croom (2001, pg. 35) maintains that "relational competencies are those competencies obtaining to the processes of communication, interaction, problem resolution and relationship development." Jarillo (1989) refers to the ability to tap external resource through the building and maintaining of social relationships. Walter *et al.* (2005, pg. 546) define firm's *network capability* as "its abilities to initiate, maintain, and utilize relationships with various external partners".

Dynamic capabilities refer to the firm's ability to generate, integrate and reconfigure internal and external resources in order to match and even create market change (Eisenhardt and Martin, 2000). Also, according to Teece *et al.* (1997), *dynamic capabilities* are associated with the processes, positions, and paths of a company. In fact, dynamic capabilities arise as a result of the firm's internal *processes* which facilitate

learning, including the capacity to reconfigure the whole value of the firm; its *position*, that is its access to specific competences by selecting suitable partners; and its *path*, that is its trajectory, because change is always path-dependent. Also, as Mitchell *et al.* (2007) claim, acquisition-based capabilities, providing new resources to the company, can also be considered as *dynamic capabilities*.

1.3.2 Relationship growth and Size growth

As mentioned earlier, the thesis will now deal with four different multidimensional models. Although they differ from each other in the way they take into consideration the interaction between the three aspects of firm growth (size, relationship and capability), they share the common belief that firm growth cannot be considered as a mere one-dimensional process.

With their "hybrid model" Wiklund and McKelvie (2010) maintain that firm growth depends on the extent to which an organization enlarges its physical boundaries (i.e. *size growth*) and the way it increases its relationships. Their model follows the work of several other authors such as Jarillo (1989) and Stevenson and Jarillo (1990). This stream of thought relies on the so-called "network perspective", which states that by developing inter-organizational relationships the firm can acquire external resources that lead to nurture the growth of its size. Jarillo (1989) is among the first to quantitatively show that firms that rely more on external resources are more likely to grow faster. In his research study the author analyses 1902 companies in 233 different industries. Through his statistical analysis, Jarillo (1989) finds evidence that fast-growing companies use external resources 64% more than average, whereas slow-growing firms exhibit the opposite behavior. Furthermore, his work shows that firms that use more external resources grow faster. Lastly, he finds evidence of a size effect. That is, small firms tend to tap, more and in a more sustainable way, resources that are external to them in order to be flexible and to grow. In conclusion, Jarillo maintains that firms may leverage new resources provided by strategic alliances with the deliberate intent to initiate a size growth process. Following Jarillo's work, other authors such as Coviello and Munro (1995), Barringer *et al.* (2005) and Zander and Zander (2005) have

found a causal positive relationship between the development of new or existing relationships and size growth.

1.3.3 Capability growth and Size growth

Mainly based on Penrose's theory of firm growth, this second multidimensional approach attempts to build a bridge between the development of new resources and capabilities (or new combinations of existing resources and capabilities) and the size growth of the organization. Penrose (1959) has been widely recognized as being the most influential author of modern resource-based thinking. In her "*The Theory of the Growth of the Firm*", the author suggests that firm's resources drive value through the development of competitive advantage (Ireland *et al.*, 2007). The basic assumptions of the Resource-based View are twofold: on the one side, heterogeneity of resources and/or capabilities. That is, different companies possess bundles of different resources and capabilities. On the other side, immobility of resources and/or capabilities, which refers to resources that competitors find either difficult and/or costly to obtain. Further studies have then found evidence that the sustainability of this advantage over competitors is contingent on the extent to which the firm's resources reflect certain characteristics (Barney, 1991). These resources should be *valuable*, *rare*, *inimitable* and *organized* (VRIO). They should be *valuable*, that is they should increase the efficiency and/or effectiveness of the firm; they should be *rare*, as otherwise it would not be possible to gain any long-term competitive advantage. Furthermore, they should be *inimitable*, that is to say imperfectly mobile or specialized to firm-specific requirements (Peteraf, 1993, pg. 183). Lastly they should be *organized*, that is the firm can effectively exploit them. While fundamental for achieving competitive advantage over competitors, Penrose also maintains that the increase of capabilities is at the basis of size growth and that the growth of the size of the firm in turn generates an increase in capabilities. According to Lockett *et al.* (2011), this happens both in *organic* and *acquisitive* growth. The former occurs when the firm enlarges its boundaries through investment that increases the size of existing company units or through greenfield investments, that is investments in the creation of new production, logistics or commercial units. The latter occurs when two or more firms merge together to become one bigger entity or when one

firm decide to acquire part or the entire of another company. Also, in order to simplify the integration process of the target firm into the acquiring one, acquisitions in many cases trigger the development of specific capabilities (Mitchell *et al.*, 2007). As mentioned earlier, these acquisition-based capabilities can, in most cases, be considered as dynamic capabilities.

Size growth and capabilities growth do not necessarily have to follows each other; they can also happen simultaneously. This is the case when acquisitions aim at obtaining the resources and capabilities to enter a new business or to implement a new strategy (Canals, 2001).

1.3.4 Relationship growth and Capability growth

This third group of studies aims at tracing a link between the network perspective (i.e. *relationships growth*) and the resource-based view (i.e. *capabilities growth*). According to Lorenzoni and Lipparini (1999), companies need to develop appropriate capabilities to assess and select right partners in order to build new networks. Gulati *et al.* (2000) have found evidence that strategic networks allow a company to have a better access to information, resources, markets, and technologies and therefore lead the company to achieve better results. Similarly, Stuart (2000) offers additional evidence to confirm the prevalent assumption that strategic alliances -being, in the first instance, access relationship- can improve performance. In his study of the effect of horizontal alliances in the semiconductor industry, the author argues that the important determinants of the strength of the alliance-performance link are the attribute profiles of the firms that an organization is affiliated with, not the mere fact that it is affiliated. His study confirms that many of these coalitions have been created by corporations eager to acquire resources and capabilities (in particular devices or manufacturing technologies) from their strategic partners. Taken for granted that firms enter strategic alliances to acquire know-how or other resources, he finds evidence that well-endowed partners are, on balance, the most valuable associations. That is, organizations with large and innovative alliance partners perform better than comparable firms that lack such partners. In addition to purveying access to resources, large partners can also facilitate the entrance into new market niches and the launch of joint-developed products by providing access

to extensive distribution channels, long-lasting customer relations or a widely-adopt technology platform. Another important result of the study is that alliances also affect firm performance through their influence on an organization's reputation. Results show in fact that enterprises -especially small ones- can benefit by partner up with large, highly skilled or well-known organizations mainly because when there is uncertainty about the quality of someone or something, evaluations of it are strongly influenced by the partner's reputation (Merton, 1968; Podolny, 1994).

Other studies follow an opposite direction and analyze the positive effect of building strategic networks on firm's internal capabilities. By creating relationships along its value chain, a firm can take advantage of strategic networks to have access to new resources and capabilities. Petroni and Panciroli (2002) and Furlan *et al*. (2007) have found evidence that the learning mechanism associated with these strategic alliances typically lead the firm to develop new capabilities in different functional areas. Other studies, focusing on "lean suppliers" in the Japanese, North American and European automotive industry, have shown that car manufacturers relying more and more on strategic alliances rather than competitive and adversarial relationships, increase their capabilities and their intense knowledge transfer to suppliers (Cusumano and Takeishi, 1991; MacDuffie and Helper, 1997; Kotabe *et al.*, 2003). Most of these studies focus on the advantages of vertical integration. Evidence that investment in relation-specific assets are positively related to superior firm performance has been also proven by Dyer (1997) and Dyer and Singh (1998). These authors also argue that the systematic share of valuable know-how with strategic partners is the real source of competitive advantage. Strategic alliances, defined as "voluntary arrangement between firms involving exchange, sharing, co-development of products, technologies, or service" (Gulati, 1998, pg. 293), have been therefore considered as an important source of resources, learning, and thereby competitive advantage. Although cooperative relationships can also have negative aspects -for instance they can reduce revenue streams by forcing firm to share profits (Shan, 1990) or can lull firm managers into failing to develop important capabilities (Hamel *et al.*, 1989; Teece, 1987) - strategic alliances are nowadays almost universally portrayed as a "must". However, there is no final agreement about the main reasons these alliances are formed (Appendix A provides a brief summary of the most influential theories on alliances formation).

17

1.3.5 Size growth, Relationship growth and Capability growth

The last model presented in this thesis is the model produced by Furlan and Grandinetti (2011). In their thesis, the authors advance a framework where firm growth is conceptualized as a three-dimensional phenomenon involving *size growth*, *relationship growth*, and *capability growth*. In addition to conceptualize firm growth as a multidimensional phenomenon, the authors also maintain that these three different types of growth are interdependent. While the interdependencies between the different dimensions of firm growth were also suggested by all the multidimensional models presented so far, Furlan and Grandinetti's model combines *all* three dimensions *simultaneously*. They formulate this new model by empirically studying 16 different firms in the North-East of Italy. This region is a highly industrialized area with a high concentration of, prevalently, small and medium-sized manufacturing firms, many of which characterized by relevant growth processes during the last two/three decades. After carrying a series of interviews with CEOs and managers of these companies, the authors were then able to compare their results with previous studies. Their final model of firm growth confirmed the entire *expected model* (i.e. the model suggested by combining previous multidimensional models) and also enriches it by adding three new interdependences that were not considered by previous authors (see Figure 2). Figure 3 shows Furlan and Grandinetti (2011)'s one, called *final model* from now on.
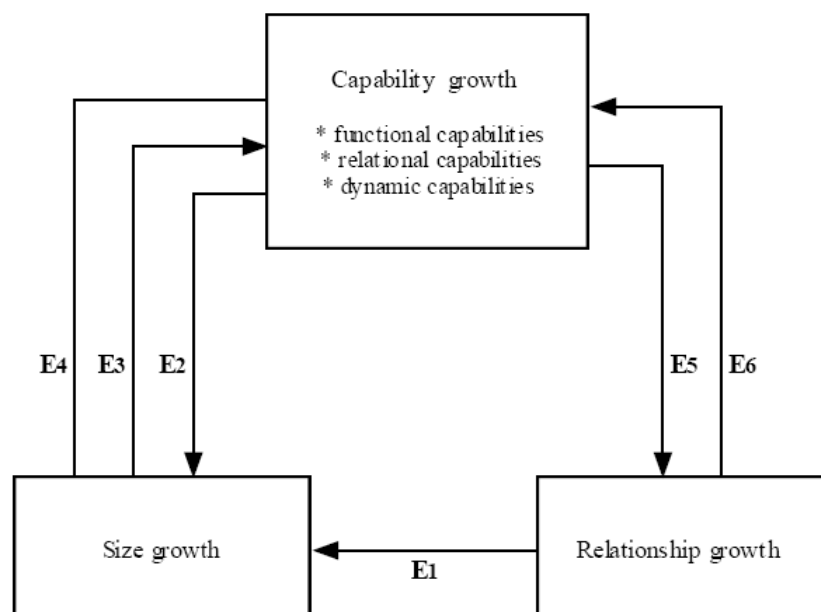
Figure 2. The *expected model* of firm growth
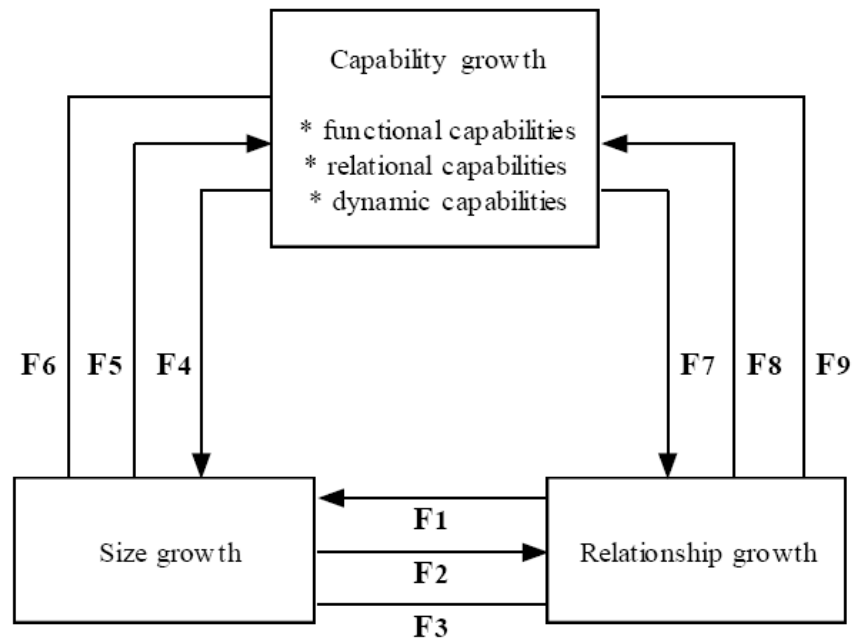
Figure 3. The *final model* of firm growth

In what follows a brief description of Furlan and Grandinetti (2011) most relevant findings is presented. For the sake of clarity, the combinations of the three dimensions are hereafter treated separately.

- Size growth and relationship growth

As far as concerns the interdependency between size growth and relationship growth, the authors maintain that these dimensions are not exclusive. On the contrary, they have found empirical evidence of their interdependency and –often- of their complimentary. For example, in industrial markets companies "new large customers often lead the suppliers to make further capacity investments" (Furlan and Grandinetti, 2011, pg. 16). Also, firms operating in the consumer market foster their size growth process by developing new networks and providing new partners with strategic services like marketing research, advertising, product design and the like. While past literature agrees that relationship growth may generate opportunities for size growth (this relationship is labelled E1 in the expected model and F1 in the final model), there was no previous evidence about what Furlan and Grandinetti label F2 and F3 in their model.

For an easier referral, Figure 4 highlights the section of the final model of main interested in this paragraph.

Final Model

Capability growth

* functional capabilities
* relational capabilities
* dynamic capabilities

Size growth

F1
F2
F3

Relationship growth

Expected Model

Capability growth

* functional capabilities
* relational capabilities
* dynamic capabilities

Size growth

E1

Relationship growth

Figure 4. Interdependency between *size growth* and *relationship growth*

F2 refers to the "establishment of new relationships, expansion of the existing relationships or also the combination of both" (Furlan and Grandinetti, 2011, pg. 18). The authors have found evidence that this interdependency does not only involve downstream relationships but also upstream ones. For instance, several firms have
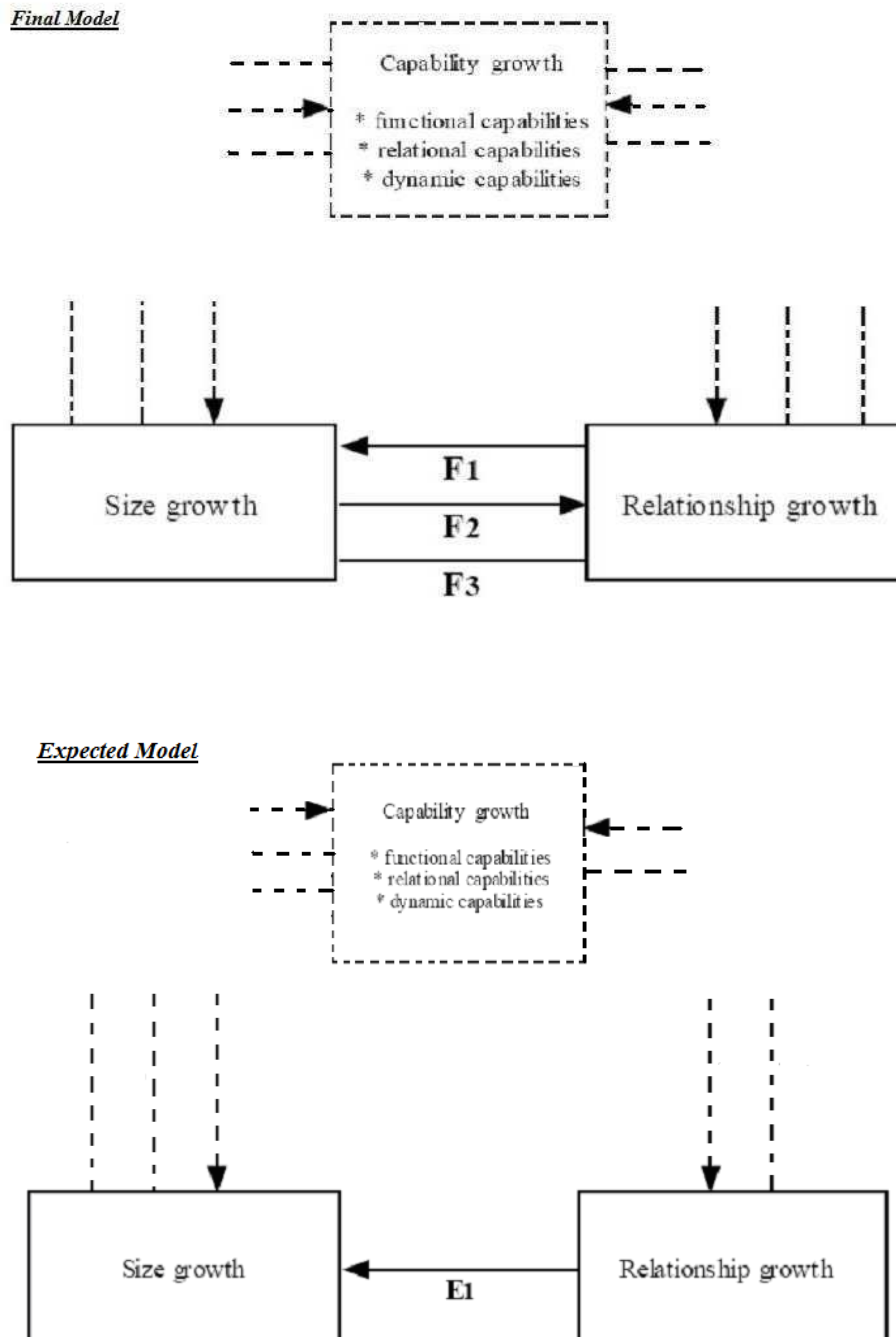
decided to move their manufacturing activities internationally through the creation of off-shore production plants that became in turn strategically important in creating relations with local subcontractor.

As far as concerns F3, the authors claim that the interdependency between *size growth* and *relationship growth* is not just causal in nature with a temporal lag that separates the cause from the effect. In fact, these dimensions can also grow simultaneously. In particular, this happens whenever an organization acquires -or merges with- another firm. The incorporation of the assets and the appropriation of the relationships belong to the acquired firm will in fact determine the simultaneous increase in the above-mentioned dimensions.

- Capability growth and size growth

With regards to the interdependencies between *capability growth* and *size growth*, the model presented by Furlan and Grandinetti (2011) follows the ones produced by previous authors. As shown in Figure 5, the interdependency labelled F4 in the final model corresponds to the interdependency labelled E2 in the expected model. As for the expected model, Furlan and Grandinetti have found evidence of the causal relationship between capability growth and the subsequent size growth. Specifically, the accumulation of capabilities leads to "three types of *strategic shift* that have triggered a discontinuity in the size growth of our firms" (Furlan and Grandinetti, 2011, pg. 20):

- internationalization strategies;
- repositioning strategies;
- diversification strategies.

Final Model

Capability growth

* functional capabilities
* relational capabilities
* dynamic capabilities

F6   F5   F4

Size growth

Relationship growth

Expected Model

Capability growth

* functional capabilities
* relational capabilities
* dynamic capabilities

E4   E3   E2

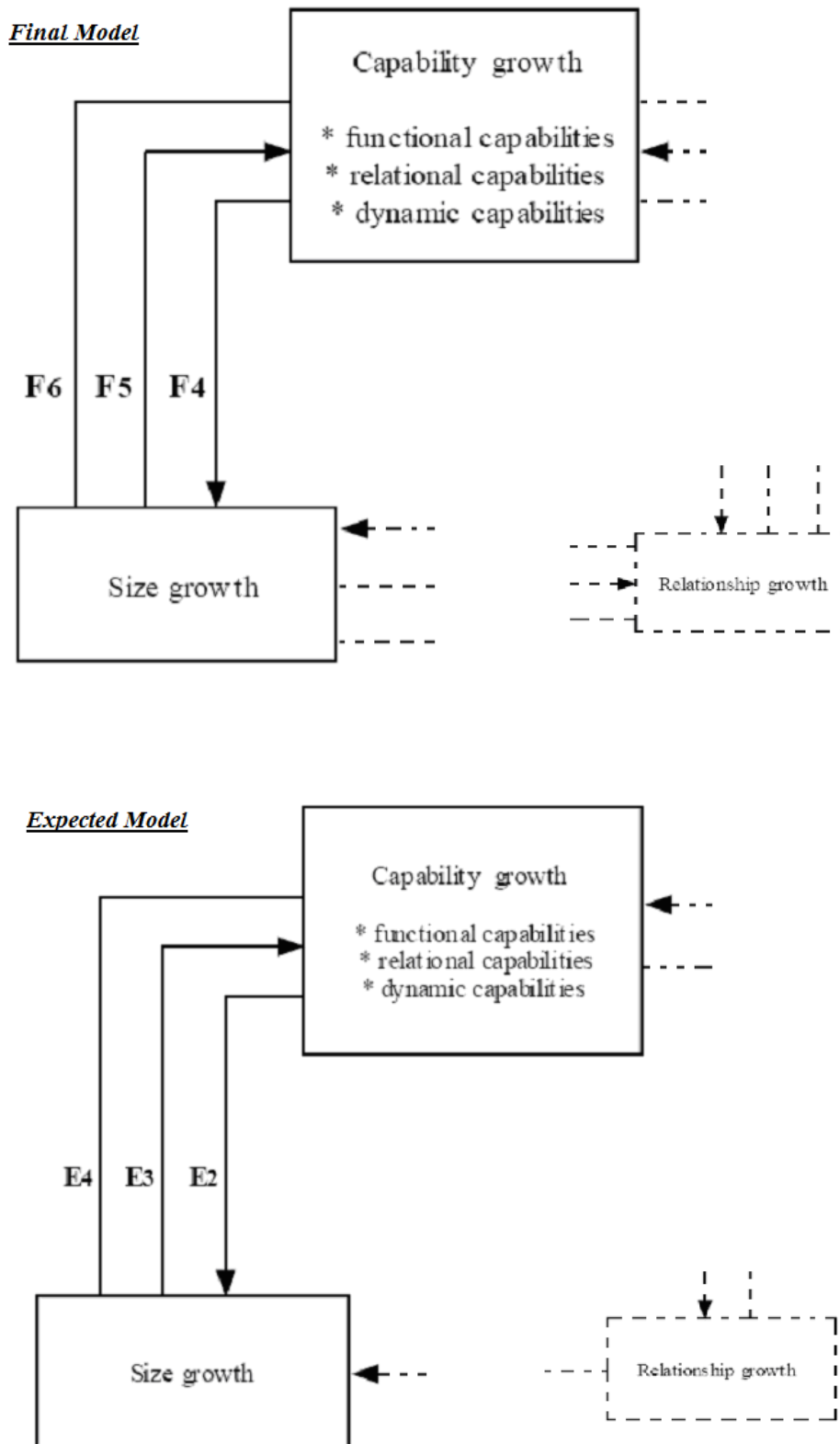Size growth

Relationship growth

Figure 5. Interdependency between *capability growth* and *size growth*

With regards to the first *strategic shift*, the authors have found evidence that firms preparing for new internationalization strategies develop beforehand new marketing

22

capabilities, for example by organizing internal training programs or by recruiting skilled employees. Similarly, *capabilities growth* also anticipates *size growth* during repositioning (both horizontal and vertical) and diversification strategies.

Furthermore, interdependencies where *capability growth* chase *size growth* (labelled F5 in the final model and E3 in the expected one) have also been found in Furlan and Grandinetti's work. "This happens when a sudden increase in the firm's size, resulting in heightened organizational complexity, requires a substantial development of new capabilities. Here the timeframes of the two growths are very different: while size growth occurs in a short time, capabilities need more time to develop in order to adapt the organization to the new size" (Furlan and Grandinetti, 2011, pg. 22). This could happen during business acquisitions, especially if the acquirers are inexperienced. As found by Mitchell *et al.* (2007), these inexperienced firms have to develop dynamic capabilities from scratch in order to sustain the integration of the resources and capabilities of the two companies. Empirical studies have shown, however, that the faster this process is undertaken the more likely it is to become problematic (Homburg and Bucerius, 2006; Chatterjee, 2009). In line with these last authors, Furlan and Grandinetti (2011) have also found that acquisitions get tougher the more the acquirer and the target are different. In particular this happens if: a) the acquirer is not significantly bigger that the target company; b) the two firms are dissimilar in terms of other structural and organizational features.

With regard to the simultaneous interdependency between capability growth and *size growth*, this is found both in the *final model* and the *expected model*, labelled F6 and E4, respectively. Furlan and Grandinetti (2011, pg. 23) claim that "several acquisitions we analyzed were fundamentally driven by the willingness of the management to acquire the stock of capabilities of the target firm. These capabilities were necessary in order to implement specific strategies such as entry into a new strategic business area".

- Capability growth and relationship growth

As far as concern the interdependencies between *capability growth* and *relationship growth*, Furlan and Grandinetti (2011), in line with previous authors, have found compelling evidence of how the former leads to the latter (Figure 6 shows that this

interdependency labelled F7 in the final model corresponds to the interdependency labelled E5 in the expected model).
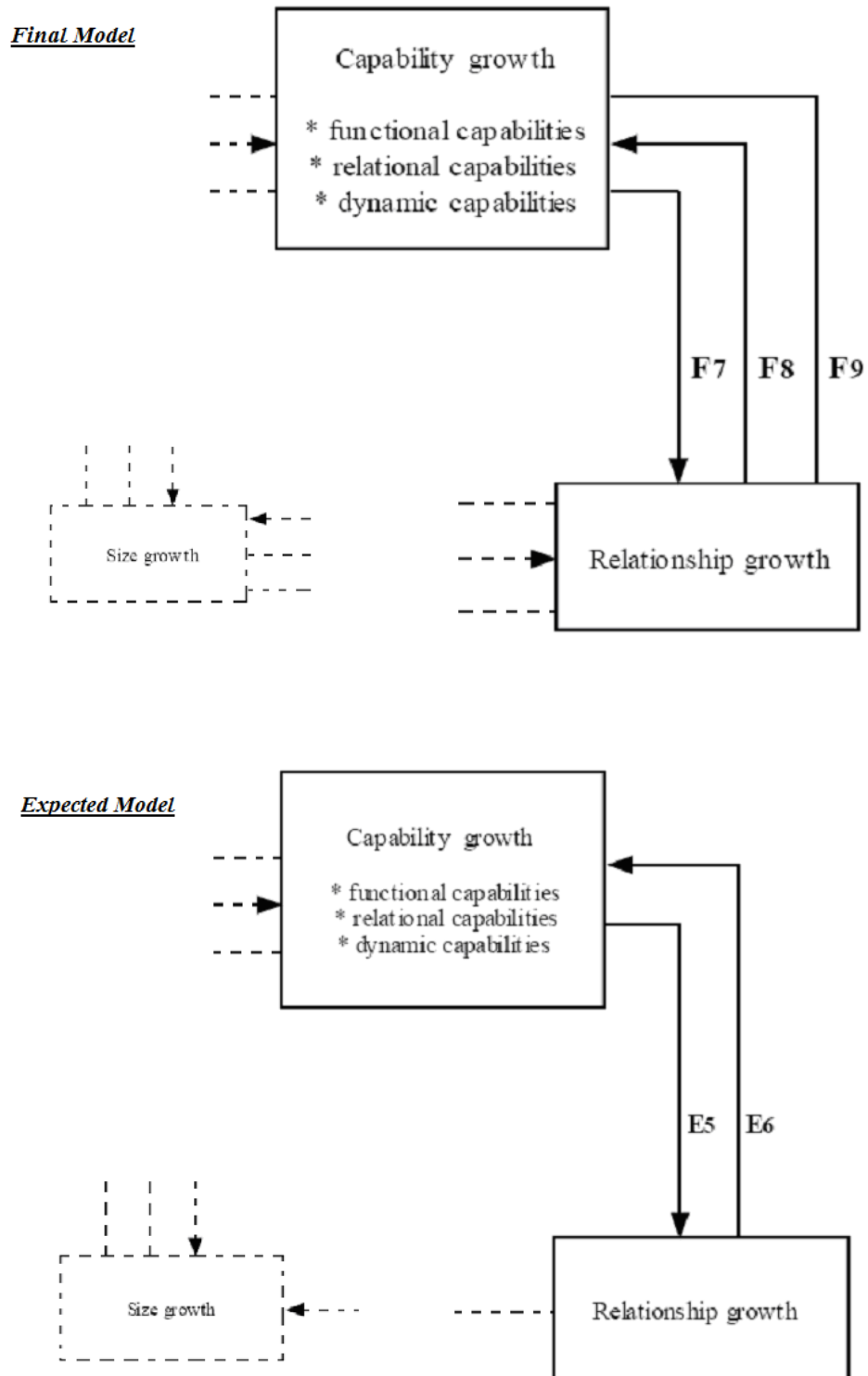
Figure 6. Interdependency between *capability growth* and *relationship growth*

For instance, investments in functional and relational capabilities allow firms to create relationships with new customers and suppliers. Additionally, investments in dynamic capabilities allow firms to undertake repositioning and diversification strategies that require a value network reconfiguration.

The opposite relationship is also true. That is, a change in an existing relationship or the formation of a new one can lead to the development of new capabilities (this interdependency is labelled F8 in the final model and E6 in the expected one).

In contrast with the expected model, Furlan and Grandinetti (2011) have also found evidence of a simultaneous interdependence between these two dimensions (labelled F9 in the final model shown in Figure 6). This is particularly true in the case of inter-firm collaborations. The authors maintain that these partners' interactions lead to a twofold result: on the one hand, "it increases the resources the firms can get access to, thus increasing the value of the relationship (i.e. *relationship growth*). On the other hand, it increases partners' capabilities (i.e. *capability growth*), including the refinement of relational capabilities" (Furlan and Grandinetti, 2011, pg. 26). In their study, the authors have found evidence that all the firms in their sample cooperate with some partners in order to develop new capabilities. While the most common situation of inter-organizational collaboration are with customers and suppliers, the authors have also found evidence that some companies are relying on "collaborations with non-profit organizations (e.g. universities), competitors (i.e. horizontal cooperation) and firms operating in other industries (i.e. lateral cooperation)" (Furlan and Grandinetti, 2011, pg. 26).

CHAPTER 2

FIRM GROWTH AND FIRM SUCCESS

What top managers are looking for is sustained and profitable growth. Sustainable profitable growth is an important concern for all companies and one of the most critical challenges facing senior executives today. However, empirical investigations show that surprisingly few established companies manage to achieve growth in both sales and profits over the longer term (Zook and Allen, 2001). The question that arises is therefore *why these firms cannot simultaneously reach a state of high profitability and high growth? Is it a strategy issue? And, is there a specific path firm can undertake to reach such desired state?*

Having presented a summary of the most influential theories about firm growth, the thesis turns now the attention to the relationship between the growth of the company and its success. Although the number of research on this topic has increased in recent years (Davidsson and Wiklund, 2000; Delmar, 1997), empirical evidence on this link remains mixed. The literature review suggests that value of growth for the success of firms is viewed in two conflicting ways.

In the following sections a brief presentation of these two different streams of thought and some relevant empirical works are presented. Then, an introduction to the Resource-based View is provided.

2.1 The key to success: "growth first, profitability later"

This first perspective maintains that firm growth is a precursor to the achievement of a sustainable competitive advantage and profitability. This is usually the perspective assumed by the majority of practitioners and policy-makers alike that consider growth as an indication of business successes. In fact, business media sources, policy programs

designed to stimulate and assist the growth of companies, as well as teaching cases and textbooks, all treat adverse growth as a rare exception (Davidsson *et al.*, 2009).

As a matter of fact, the assumption that firm growth leads to higher levels of profitability and success also appears in a variety of literature ranging from *scale economies* (Besanko et al., 2004), to *experience effects* (Stern and Stalk, 1998), *first-mover-advantage* (Lieberman and Montgomery, 1988) and *network externalities* (Katz and Shapiro, 1985).

According to the *economy of scale* perspective, in fact, the bigger the firm (and, in particular, the bigger the scale of output), the lower the average unit cost should be. By producing at a lower unit price, firm are therefore able to become more profitable.

Similarly, the *experience effect* theory maintains that the more often a specific task is performed, the lower the cost of performing it becomes; and this is more likely to happen for bigger companies. As for the economy of scale case, firms are therefore able to gain a competitive advantage by producing cheaper products compare to their competitors. With regards to the *first-mover-advantage* theory, there may be an advantage by entering a new market as first. A growing firm is more likely to expand into new markets and, as a consequence, to enter as a first mover. According to this perspective, first-movers can be rewarded with huge profit margins and a monopoly-like status. Lastly, the *network externalities* literature claims that a growing firm is more likely to benefit from this network effect. In fact, the bigger the company the more products is likely to sell. Consequently, since more people use them the value of the products or services increase, adding therefore profit to the firm.

The assumption that firm growth leads to higher level of profitability and success has been also empirically proved by several authors. For example, using a longitudinal database of 45,525 firms, Sexton *et al.* (2000), have found that firm profitability is correlated with sustainable growth. Firms that can finance growth through internally generated funding are more profitable than firms with uncontrolled or unbridled growth. In their research on possible connection between growth and profitability, Cox *et al.* (2002) affirm a positive relationship between sales growth rate and the growth rates for profitability and market share. Similar results have been achieved by studies conducted by Chandler and Jansen (1992) and Mendelson (2000). Authors such as Baum and

Wally (2003), Cho and Pucic (2005) and Peng (2004) obtained weaker results, yet statistically significant.

2.2 The key to success: "profitability first, growth later"

In sharp contrast to the above rationale, this second perspective maintains that "growth first, profitability later" might also create numerous problems and challenges (Churchill and Lewis, 1983; Greiner, 1972; Kazanjian, 1988; Shuman and Seeger, 1986).

With regards to the theories presented in the previous section (i.e. *scale economies*, *experience effects*, *first-movers-advantage* and *network externalities*), "research in industrial economics have shown that scale economies are not much of a barrier to entry; that surviving new entrants operate for long times at sizes far smaller than the industry average; that minimum efficient scale is typically reached at a rather small size; that very limited cost advantage are usually gained beyond that minimum, and even that it is possible to operate significantly below it without severe cost disadvantage" (Davidsson *et al.*, 2009, pg. 390).

The belief that there is no relationship between growth and profitability (and, therefore, success) has been also confirmed by empirical studies. For example, in their thesis, Markman and Gartner (2002) have tested whether extraordinary high-growth firms can achieve profitability while growing, or whether such firms are likely to be unprofitable as they attempt to overcome the hurdles of change while achieving significant size. Using longitudinal data from three separate cohorts (from 1992 to 1996, 1993 to 1997, and 1994 to 1998) of *Inc. 500* firms (that is, the 500 fastest-growing private companies in the U.S.), their analyses have shown that extraordinary high growth -in terms of sales and number of employees- is not related to firm profitability. In a review of research on the strategy of high-growth firms, Hoy *et al.* (1992) have found similar evidence. They conclude that the pursuit of high growth may be minimally or even negatively correlated with firm profitability. Shuman and Seeger (1986) have found no statistical relationship between firm growth and financial performance in their studies of small high-growth firms. Similarly, Chandler and Jansen (1992) have discovered that sales growth and profitability are not correlated. Capon *et al.* (1990) state that a significant positive association between growth and financial performance is only found in across-

industry studies, whereas the effect is very small and statistically non-significant in within-industry studies. Ramezani *et al.* (2002)'s results have also indicated that maximizing growth does not maximize corporate profitability or shareholder value. Therefore, "growth should not be the input to strategic planning but the outcome of a sound investment strategy that is geared to accepting value-creating projects" (Ramezani *et al.*, 2002, pg. 65).

A recent study by Davidsson *et al.* (2009) has shown that growing for the own sake of growing is not necessarily the best strategy to follow. On the contrary, the authors have found evidence that "profitability first" rather than "growth first" is the preferable strategy in order to achieve the desirable state of high growth and high profitability. Their result is in line with Khanna and Palepu (1999) that also maintain managers should make a fundamental shift in their strategic orientation from "growth now, profitability later" to "profitable growth now".

In summary, the empirical evidence on the relationship between firm growth and profitability is inconclusive (Davidsson *et al.*, 2009). Despite the theoretical arguments there is little evidence of a sure relationship between firm growth and firm performance. This thesis aims at providing another empirical test that could shed some light on a still high-controversial topic.

2.3 The Resource-based View Approach

The Resource-based View is in its historical origin very closely connected with firm growth and, in particular, with the concept of *profitable growth* (Davidsson *et al.*, 2009). Furthermore, with its focus on within-industry differences and on small- and medium-sized enterprises (SMEs) rather than large corporations (Davidsson and Wiklund, 2000; Peteraf and Barney, 2003), this approach seems to fit well with the dataset of manufacturing companies used in this study. It seems therefore reasonable to use the theoretical lens of this approach as a starting point in considering the relationship between firm growth and profitability. By the logic of the Resource-based View, firms should pursue growth opportunities that match their resource advantage. This would in turn allow them to grow profitably. However, if such companies pursue other

opportunities growth, they may destroy rather than create value (Kogut and Zander, 1992).

The Resource-based View maintains that superior performance is likely to be indicative of having built a resource-based competitive advantage. According to Davidsson *et al.* (2009)'s theoretical argument, building a valuable resource-based competitive advantage may at first constrain growth. However, "the underlying advantage itself and the financial resources generated through high profitability make it possible for firms in this situation to achieve sound and sustainable growth – which may require building a series of temporary advantages – without having to sacrifice profitability. By contrast, when firms strive for high growth starting from low profitability, the latter often indicates lack of competitive advantage" (Davidsson *et al.*, 2009, pg. 389). The authors also argue that low-profitability firm cannot usually finance the creation of a hard-to-copy competitive advantage, while growing. As a consequence, their growth process will turn to be not sustainable and will not therefore improve the company future profitability. "Based on these Resource-based View arguments, we hold that although exceptions exist, it is advantageous in most situations to let profitability (and the competitive advantage it reflects) be the horse that pulls the growth cart, rather than the other way around" (Davidsson *et al.*, 2009, pg. 389).

The Resource-based View does not deny the existence of other sources of superior firm results such as scale economies or first-mover-advantages. However, Barney (1991) suggests that if based on just scale economies a cost advantage is unlikely to be sustainable. Similarly, the author maintains that first-mover-advantages become sources of sustained competitive advantage only when companies are based on VRIO resources (i.e. *valuable*, *rare*, *inimitable* and *organized*).

Given its elegant simplicity and its immediate face validity, the Resource-based View's core message is appealing, easily grasped, and easily taught. Yet the Resource-based View has also been criticized for several weaknesses. While a comprehensive presentation of this theory is not the main goal of this thesis, a brief summary of the criticisms is presented in Appendix B (for a more detailed overview of these critiques, the reader can refer to Kraaijenbrink, 2010).

In order to avoid some of the main criticism addressed towards this theory, this thesis refers to the Resource-based View in a rather broader sense. This notion will be in fact

extended with the *dynamic capabilities* approach and the *Knowledge-resource View* theory.

A brief description of these two approaches will be hereafter presented.

2.3.1 Dynamic capabilities approach

Helfat and Peteraf (2003) and Teece *et al.* (1997) have introduced this approach to the Resource-based View in order to incorporate a processual dimension and a better understanding of how advantage is gained and maintained over time. *Dynamic capabilities* are the organizational and strategic routines by which firms achieve new resources configurations as markets emerge, collide, split, evolve, and die (Eisenhardt and Martin, 2000). These resources cannot remain static. Although in static environments some static unique resources could lead to a sustainable competitive advantage, dynamic environments call for *dynamic capabilities* (Helfat *et al.*, 2007). In today's turbulent environment these capabilities must be continually evolving and developing. Therefore, companies must continue to invest in and upgrade their resources to create new strategic growth alternatives. In other words, *dynamic capabilities* are directed at the creation of future valuable resources (Bowman and Ambrosini, 2003). The *dynamic capability* perspective has lent value to the Resource-based View arguments as they transform what is essentially a static view into one that can encompass competitive advantage in a dynamic context (Barney, 2001). According to Teece *et al.* (1997), *dynamic capabilities* comprise four main processes: *reconfiguration*, *leveraging*, *learning* and *integration*.

Reconfiguration refers to the transformation and recombination of assets and resources. *Leveraging* might involve replicating a process or a system that is operating in one area of an organization in another, or by extending a resource by deploying it into a new domain. As a dynamic capability, *learning* allows tasks to be performed more effectively and efficiently as an outcome of experimentation, failure and success. Finally, *integration* relates to the ability of the firm to integrate its assets and resources, resulting in a new resource base (Jenkins and Ambrosini, 2007).

2.3.2 Knowledge-based View theory

Giving the multidimensional growth approach on which further analyses are based upon, it is therefore important to extend the notion of Resource-based View with the Knowledge-based thinking, which is enormously important for understanding a number of central topics in strategy, including acquisitions, alliances and strategic choices (Pettigrew *et al.*, 2006). This perspective considers knowledge as the most strategically significant resource of the firm (Grant, 1996). What makes knowledge particularly interesting is that it can be *explicit*, that is being the knowledge that can be articulated to others, and *tacit*, that is being the knowledge that is embedded in people that they are not able to articulate. Polanyi (1966) famously characterized tacit knowledge when he said "we know more than we can say that we know". In terms of strategy, both explicit and tacit knowledge can be very important. It is generally argued, however, that tacit knowledge is more strategically important as it is embedded in people and extremely difficult for competitors to replicate. Because knowledge-based resources (above all, tacit ones) are usually difficult to imitate, its proponents argue that heterogeneous knowledge bases and capabilities among firms are the main determinants of sustained competitive advantage and superior performance (DeCarolis and Deeds, 1999).

In conclusion, in the context of SMEs, the Resource-based View -considered in a broader sense- provides a plausible explanation for why firms in the same industry might differ in performance and it is therefore used as the rationale behind the analyses presented later.

In the following section a more detailed description of the dataset and the research methodology are presented. However, before diving into the more empirical part of the thesis, a more detailed summary of Davidsson *et al.* (2009)'s work is provided. Even though several major changes have been made with respect to their thesis, this has represented an important starting point for the whole project.

2.4 The framework proposed by Davidsson et al. (2009)

As briefly mentioned before, Davidsson *et al.* (2009) have used two longitudinal data sets of small- and medium-sized enterprises (SMEs) from Sweden and Australia to test two hypotheses about how the relationship between growth and profit develops over

time. On the one hand, the first hypothesis questions whether firms that reach high profitability at low growth are more likely to success in subsequent periods. On the other hand, the second hypothesis argues whether a state of low growth and low profitability is more likely to be reached by companies that first showed high growth at low profitability (while important this latter hypothesis is, however, not tackle in this thesis). Their findings suggest that "profitability first" rather than "growth first" is the preferable strategy in order to achieve the desirable state of high growth and high profitability. That is, firms achieving high overall company performances are "much more likely to originate from profitable firms with low growth than from growing firms with low profitability. Firms in the latter category are instead more likely to retreat a low growth and low profitability state" Davidsson *et al.* (2009, pg. 403). High growth is therefore not direct evidence of value creation and success. In fact, when companies strive for high growth starting from low profitability, it usually indicates lack of valuable and difficult-to-imitate advantage. Conversely, creating a competitive advantage -which may at first constrains growth- and assuring financial resources through high profitability make it more likely for firms to achieve a more sustainable growth. Furthermore, the authors have found evidence that firms which embark on a growth path starting from low levels of profitability are unlikely to be able to finance strategies towards building valuable and hard-to-copy advantages. As their growth is unlikely to be sustainable (Ramezani *et al.*, 2002) they run an increased risk of becoming low performers on both growth and profitability.

In order to achieve these conclusions the authors have had to first classify firms into five performance groups in any period of time based on two performance dimensions: sales growth and ROA (considered as a proxy of firm growth and profitability, respectively). Figure 7 shows how the firms are divided into the five different categories. In order to study how firms move from one category to the other over time, Davidsson *et al.* (2009) have calculated the proportion of companies that moved to each group (or ceased business). Then, they have tested the differences between these specific transition proportions using standard z-tests.

Following their work, the analysis presented in this thesis will use the same method to categorize the companies. However, some improvements are made. Chapter 6.1 discusses in depth these changes.

Figure 7. Davidsson *et al.* (2009)'s categorization schema of firms

CHAPTER 3

SAMPLE AND RESEARCH METHODOLOGY

After having presented the theories about firm growth and the literature concerning profitable growth, this chapter deals with the empirical analyses performed on a set of Californian manufacturing companies.

The chapter is organized as follows: First, the objectives of the thesis and the research question are once again presented. Then, a description of the dataset, the variables used and the analyses performed are provided.

3.1 Objectives

The main goal of this work is to deeper investigate the topic of profitable growth. Following Davidsson *et al.* (2009), this thesis analyzes a set of Californian manufacturing companies in order to find further evidence of the relationship between growth and profitability. While most of the past literature considers growth as a synonymous of success, recent studies and events have shifted the attention towards profitability, pointing out that growth *per se* does not equate with business success.

3.2 Research Question

The thesis tries to answer a specific research question:

- What is the best strategy to achieve high overall firm performance? In particular, are firms that pursue profitability instead of growth more likely to reach a *Star* status over time?

Consequently, a hypothesis about growth–profit configurations over time is developed.

Hypothesis: Firms that show high profitability at low growth are more likely to reach a state of high growth and high profitability in subsequent periods than are firms that first show high growth at low profitability.

In order to answer this question and test the hypothesis, a pool of more than 200 companies have been gathered and analyzed.

3.3 Data Sources

The data used to run the regressions are sourced from *Mergent Online*. This database provides business and financial information for over 23,000 U.S. and international public companies. The analysis presented in this thesis, however, focuses solely on Californian public manufacturing firms.

California is the most populated state in the United States, accounting for more than 37 millions inhabitants[1] (12% of overall U.S. population). It is located in the far west bordered by Oregon, Nevada, and across the Colorado River, Arizona, Mexico and the Pacific Ocean. The economy of California plays a very significant role in United States. California's economy is the eighth largest economy in the world, if the states of the U.S. were compared with other countries. According to data given by the California Department of Finance [2], California's gross state product is $1.891 trillion. Manufacturing accounted for nearly 10% of the economic output with a contribution of $189 billions.

The chief manufacturing goods of the state are electronic and electrical equipment, computers, industrial machinery, transportation equipments and foods.

As of 2011 California places second (after New York State and ahead of third place Texas) with 53 *Fortune 500* company headquarters, many of which are located in the Silicon Valley, a region in the Southern part of the San Francisco Bay Area in Northern

---

[1] http://2010.census.gov/2010census/data/
[2] http://www.dof.ca.gov

California. Silicon Valley is the biggest high-tech manufacturing center in the United States, accounting for one third of all venture capital investment in the United States. Following the U.S. Census Bureau[3], manufacturing companies are those whose SIC code (Standard Industrial Classification code) starts with the first two-digit ranging from 20 to 39, as shown in Table 1.

Table 1. Manufacturing SIC Code

Manufacturing
(SIC Code 20-39)

2000 Food and Kindred Products	3000 Rubber/Misc. Plastic Products
2100 Tobacco Manufacturing	3100 Leather and Leather Products
2200 Textile Mill Products	3200 Stone, Clay, Glass and Concrete Products
2300 Apparel and Other Textile Products	3300 Primary Metal Industries
2400 Lumber and Wood Products	3400 Fabricated Metal Products
2500 Furniture and Fixtures	3500 Industrial and Commercial Machinery and Computer Equip.
2600 Paper and Allied Products	3600 Electrical Equipment and Components
2700 Printing and Publishing	3700 Transportation Equipment
2800 Chemicals and Allied Products	3800 Measurement Analyzing, Control Instr and Related Prod.
2900 Petroleum and Coal Products	3900 Misc. Manufacturing Industries

Limiting the analysis to sole manufacturing companies insures that the dimension on which the success of the firms is characterized is of comparable importance. However, since manufacturing includes a large variety of industries exception can be found.

Another restriction is also applied to the dataset. Since data are gathered for the years 2004 through 2009, only firms founded before or in 1999 are considered. The reason being that "young companies" (i.e. firms founded after 1999) are more likely to experience uncommon growth and profitability rates in their first years, and could therefore alter the results. As a consequence, even the youngest firms in the dataset have been operating in their business for at least five years.

After taking into consideration the geographic, industry and time frame constrains, the dataset accounts for 1,102 firms. Missing data on growth and/or profitability in addition to eliminating firms that merged or reorganized as part of a parent company have further reduced the analyzable sample to 218 companies for the "Employees analysis" and 239 for the "Sales Analysis" (refer to the next section to find out more about these two distinctive analyses). Even though in Chapter 1 mergers and acquisitions have been

---

[3] http://www.census.gov/epcd/www/sic.html

described as possible strategies companies use to grow, it is important to note that the focus of this thesis is on firms that maintain their original organizational structure. The main reason being that mergers and acquisitions envisage the participation of two or more parties, forcing firms to cope with different interests and not allowing them to be completely "masters of their own".

With respect to their size, companies in the dataset vary from one-person firms to large multinational companies. The majority of firm is however considered small businesses. In the United States, the definition of small business is set by a government department called the Small Business Administration (SBA) office[4]. SBA defines a small business concern as "one that is independently owned and operated, is organized for profit, and is not dominant in its field". Unlike the UK and the European Union which have simple definitions applied to all industries, the U.S. has chosen to set size standards for each individual SIC coded industry. This variation is intended to better reflect industry differences. With respect to the manufacturing industry, the maximum number of employees may range from 500 to 1500, depending on the type of product manufactured.

Among the 218 firms analyzed in the "Employees analysis", 52.3% of them have less than 500 employees; 72% of the companies have less than 1500 employees. Similar percentages have been found for the "Sales analysis".

In terms of foundation date, companies in the dataset range from 1849 to 1999. The median is 1986.

More complete descriptive statistics of the dataset are provided in Appendix C.

3.4 Measures

The analyses performed in this thesis require firm profitability and firm growth to be calculated for two different periods.

On the one hand, *Period 1* includes years 2004, 2005 and 2006. On the other hand, *Period 2* combines years 2007, 2008 and 2009.

In line with Davidsson *et al.* (2009) and Arend's (2006) recommendations, return on asset (ROA) is used as a proxy of profitability. In order to obtain more reliable results,

---

[4] http://www.sba.gov/content/what-sbas-definition-small-business-concern

profitability is computed as the arithmetic mean between three subsequent years. Specifically, the following formula has been used:

$$ROA = \frac{ROA_t + ROA_{t+1} + ROA_{t+2}}{3},$$

where t is 2004 and 2007 for *Period 1* and *Period 2*, respectively.

With regards to firm growth -whether employees growth or sales growth- academics have not come to agree yet which is the most appropriate growth indicator. In order to avoid any critics and to obtain the most reliable results possible, both indicators have been used in two separate analyses. It is important to note that, given the complexity to measure capabilities growth and relationships growth, only size growth is considered. Even though the two other growth dimensions presented in Chapter 1 are not directly taken into consideration, Chapter 6 will discuss the possibility to interpret the results within the multi-dimensional approach proposed by Furlan and Grandinetti (2011). Following Jarillo (1989), the compounded rate of growth for each company in the two periods is calculated as follows:

$$Growth = ((Employees_{t+n} / Employees_t)^{1/n} - 1) * 100,$$

where t is 2003 (for *Period 1*) and 2006 (for *Period 2*) and $n = 3$. The same formula is then used with S*ales* instead of *Employees*.

CHAPTER 4

ANALYSIS

As mentioned in the previous section, growth and profitability play a critical role in the analyses. In fact, these two indicators are used to classify firms into five different categories: *Star*, *Profit*, *Growth*, *Middle* and *Poor*. Both profitability and growth are calculated relative to other firms in the dataset. Specifically, they are divided by the dataset median rather than the mean in order to reduce the impact of outliers.

Although different classification methods have been used (see Appendix D for more details), the primary classification method adopted in this thesis follows the scheme used by Davidsson *et al.* (2009) and it is shown in Figure 8.

Figure 8. Davidsson's categorization scheme of firms by growth and profitability

Based on the two performance dimensions (i.e. profitability and growth) firms are divided into the following five performance groups:

- *Poor*: low performance on both dimensions; that is, below median (i.e. 2nd quartile) on both and lowest quartile on at least one.

- *Middle*: mid-performance (1st or 3rd quartile) on both dimensions.

- *Growth*: high growth performance, but low profitability; that is, above median on the former and below on the latter, but not qualifying as *Middle*.

- *Profit*: high profit performance, but low growth performance; that is, above median on the former and below on the latter, but not qualifying as *Middle*.

- *Star*: high performance on both dimensions; that is, above median on both and highest quartile on at least one.

Each company is therefore classified into one of these five groups for both *Period 1* and *Period 2*. Recalling from the previous chapter, while *Period 1* combines years 2004, 2005 and 2006, *Period 2* refers to years 2007, 2008 and 2009. Once every company is classified as Star, Profit, Growth, Middle or Poor for both periods, logistic regressions are then performed.

The interest is in how likely is for firms starting from a specific state in *Period 1* to move to the preferred Star state in *Period 2*. Specifically, the formula used to perform the logistic regression is the following:

$$P(Star_2 = 1) = \beta_1 Star_1 + \beta_2 Profit_1 + \beta_3 Middle + \beta_4 Growth_1 + \beta_5 Poor_1$$

Adding a series of control variables, the logistic regression becomes as follows:

$$P(Star_2 = 1) =$$
$$= \beta_1 Star_1 + \beta_2 Profit_1 + \beta_3 Middle + \beta_4 Growth_1 + \beta_5 Poor_1 + \beta_6 debt_1 + \beta_7 ta_1 + \beta_8 high\_tech + \beta_9 activity + \beta_{10} empl_1$$

A more detailed description of the dependent and independent variables are presented in the next chapter.

4.1 The Dependent Variables

The dependent variable of the logistic regression is the binary variable representing the Star state in *Period 2*. In particular, Star2 assumes value 1 if in *Period 2* the company is characterized by high performance on both dimensions (i.e. profitability and growth). Once again, the goal of this thesis is to evaluate which state in *Period 1* is more likely to lead the company to reach the Star state in the following period.

4.2 The Independent Variables

- *Star1* - this variable assumes value 1 if the company is in a Star position 0 otherwise.

- *Profit1* - this dummy assumes value 1 when the company has high level of profitability and low level of growth.

- *Growth1* - it indicates firms with high growth performances, but low profit performances in *Period 1*.

- *Middle1* - companies that assume value 1 for this dummy have neither high nor low profitability and growth rates. Their performances range between the 1st and 3rd quartile for both dimensions.

- *Poor1* - it assumes value 1 when companies have low performance on both dimensions in *Period 1*.

- *debt1* - this variable is computed as follows:

$$debt1 = \frac{debt_{2004} + debt_{2005} + debt_{2006}}{3},$$

with $debt_t = \frac{total\_liabilities_t}{equity_t}$.

Total_liabilities includes current liabilities, long-term debt, and any other miscellaneous liabilities the company may have. *Equity* is computed as total assets minus total liabilities. The higher the total liabilities over equity ratio is, the more the firm relies on debt.

- *ta* - it stands for total assets and is computed as follows:

$$ta1 = \frac{ta_{2004} + ta_{2005} + ta_{2006}}{3}.$$

These assets can take various forms, ranging from real estate and investment securities to equipment and inventory. Cash also contributes to the sum of assets.

- *high_tech* - this variable assumes value 0 whenever the company is a low-tech one and value 1 when the company is a high-tech one.

There are many different ways to classify a company as low- or high-tech. Looking at the four-digit SIC codes, the literature has not come yet to agree which SIC codes determine whether a company is a high-tech one or not. Furthermore, such identification is problematic for diversified (usually large)

firms, which may operate in different industries and sectors. In this thesis the classification used by Cloodt *et al.* (2006) is considered. Companies operating in one of these four industries are here labeled as high-tech ones: aerospace and defense (SIC codes 372x and 376x), computers and office machinery (SIC code 357x), pharmaceuticals (SIC code 283x) and electronics and communications (SIC code 36xx).

The dataset used in the Employees analysis consists of 218 companies of which almost 64% are considered as high-tech ones. Similar percentages have been found in the Sales analysis (see Appendix C for more details about all these high-tech firms).

- *activity* - it refers to the number of years the firm has operated in its business. It is computed by considering the following formula:

$$activity = 2004 - founded\_year$$

This variable ranges from 155 to 5 years (note that this lower limit is due to the fact that only companies founded before or in 1999 have been considered).

- *empl1* - it refers to the number of employees of firms in *Period 1*. The formula used is:

$$empl1 = \frac{empl_{2004} + empl_{2005} + empl_{2006}}{3}.$$

For the Employees analysis, in *Period 1* the median of *empl1* is 419. However, it is interesting to note that the mean is 4340. This number is much higher than the mean because the dataset includes several multinational companies such as Hewlett-Packard, Intel, Cisco Systems, Chevron Corporation and Apple. Similar results have been obtained for the Sales analysis.

In the next chapter the results of the logistic regressions are presented.

CHAPTER 5

RESULTS

In this section the results of the logistic regressions are presented. Recalling from previous chapters, two similar analyses are performed. The differences between these two analyses are to be found in the way firm growth is calculated: the first analysis (i.e. Employees analysis) computes firm growth as employees' growth rate; the second one (i.e. Sales analysis) calculates growth as the change in sales.

For the results of different classification methods and of variations of the time period refer to Appendix D.

5.1 Employees Analysis

Before running the logistic regressions, an overview of the transitions between a certain state in *Period 1* and the Star state in *Period 2* is provided through the cross-tabulations shown in Table 2.

These results alone already show that Star and Profit firms are more likely to stay or become a Star company in *Period 2* compared to all other states.

The connection between these results and the logistic regressions presented below is straightforward. By dividing, for example, the number of Profit companies that become Star in *Period 2*, 9, by the number of Profit that do not reach this state, 16, the odds of becoming a Star firm in *Period 2* starting from a Profit state in the previous state is 9/16 = .563. Replicating the same calculations for the "base" state (i.e. Middle), the result is 9/52 = .173. To get the odds ratio, which is the ratio of the two odds just calculated, the formula is: .563/.173 = 3.25. As shown in the output shown in Table 3, this is exactly the odds ratio obtained from the output of the *logistic* command in the statistical software STATA.

Table 2. Cross-tabulation for firms in *Period 1* and *Period 2* (in parenthesis column percentage)

		P E R I O D 1					
		Star1	*Profit1*	*Middle1*	*Growth1*	*Poor1*	*TOT*
P E R I O D 2	*Star2=1*	21 (42.9)	9 (36.0)	9 (14.7)	3 (9.7)	2 (3.9)	44 (20.2)
	Star2=0	28 (57.1)	16 (64.0)	52 (85.3)	28 (90.3)	50 (96.1)	174 (79.8)
	TOT	49 (100.0)	25 (100.0)	61 (100.0)	31 (100.0)	52 (100.0)	218 (100.0)

Table 3. Employees analysis: logistic regressions

	Star2 = 1			
	Logistic regression		*Logistic regression with control variables*	
	n = 218		n = 218	
	ODDS RATIO	*p-value*[5]	ODDS RATIO	*p-value*
Star1	4.33	**	4.54	***
Profit1	3.25	**	3.93	**
Growth1	.62		.58	
Poor1	.23	*	.21	*
debt1	-	-	1.05	
ta1	-	-	1.00	
high_tech	-	-	1.47	
activity	-	-	.99	
empl1	-	-	1.00	

[5] Significance levels: *p<0.1; **p<0.05; ***p<0.001.

In order to avoid the "dummy variable trap", one of the five state dummies had to be left out. Specifically, the Middle state has been chosen. In analyzing the results of the regressions the reader should therefore be aware that all outputs relate to this "base" state.

These results show that two states (i.e. Star1 and Profit1) are statistically significant at a 5% level, while Poor1 is significant at a 10% level. It is then interesting to analyze the odds ratios. The odds ratios are the odds of success (i.e. become a Star company in *Period 2*) divided by the odds of failure (i.e. not reaching a Star position in *Period 2* being any specific state) relative to the "base" state (as pointed out before, in this thesis, the Middle category has been chosen). For example the odds ratio relative to Profit1 is 3.25. This is the amount of change expected in the odds ratio for a one-unit increase in Profit1 (that is, going from *not* being to being a Profit company in Pe*riod 1*), with all other variables in the model held at zero. In other words, the odds for a Profit company in *Period 1* to start performing well on both dimensions in *Period 2* are more than three times those of a company classified as Middle. Conversely, when it turns to become a Star company in *Period 2*, being a Growth firm in *Period 1* is not statistically different from being a Middle company. That is, the positive effect for a company of its focus on profitability is to be found for high level of ROA. Furthermore, these results show that, no matter how much effort a company puts on growing, if this growth process does not go hand in hand with profitability, the chances of performing well in subsequent periods are low. That is, a company that focuses more on growing is less likely to become a Star company compared to a firm that focuses more on profitability.

In the next regression (shown in Table 3) several control variables have been added. Even though they are not statistically significant, the introduction of these variables slightly changes the odd ratios and the significance of the four states. These new results provide an even clearer evidence of the advantage of focusing on profitability rather than on growth.

Both regressions show that Star and Profit firms are in an advantageous position with respect to Middle, Growth and Poor companies. However, there is no evidence of the possible differences between the former two states. In order to test whether a difference exists, a Wald test is performed. The result is shown in Table 4.

Table 4. Wald test

test *Star1 = Profit1*	
Chi2 (1)	.08
Prob > Chi2	.78

According to the test there is no statistical difference between Star1 and Profit 1. That is, no matter how much a firm is growing, if firms are highly profitable they are likely to encounter future success.

5.2 Sales Analysis

Similar results are obtained by computing firm growth as sales growth. As for the employees analysis, a cross-tabulation of the combinations between the dependent and independent variables is presented in Table 6.

Table 5. Cross-tabulation for firms in *Period 1* and *Period 2* (in parenthesis column percentage)

		PERIOD 1					
		Star1	*Profit1*	*Middle1*	*Growth1*	*Poor1*	*TOT*
P E R I O D 2	*Star2=1*	26 (48.2)	11 (31.4)	12 (16.7)	4 (8.3)	5 (8.9)	58 (21.9)
	Star2=0	28 (51.8)	24 (68.6)	60 (83.3)	44 (91.7)	51 (91.1)	207 (78.1)
	TOT	54 (100.0)	35 (100.0)	72 (100.0)	48 (100.0)	56 (100.0)	265 (100.0)

Additionally, the results of the logistic regressions are hereafter provided.

Table 6. Sales analysis: logistic regressions

	Star2 = 1			
	Logistic regression		Logistic regression with control variables	
	n = 265		n = 239	
	ODDS RATIO	*p-value*	ODDS RATIO	*p-value*
Star1	4.64	***	5.35	***
Profit1	2.29	*	3.30	**
Growth1	.45		.57	
Poor1	.49		.52	
debt1	-	-	1.14	**
ta1	-	-	1.00	
high_tech	-	-	1.35	
activity	-	-	.99	
empl1	-	-	1.00	

In line with the Employees analysis presented before, Table 6 shows how being a Star or Profit company in *Period 1* "helps" reaching the Star state in the following period. Both states are better than the "base" state (i.e. the Middle state). Moreover, this analysis shows that there is not statistical difference between being in a Middle, Growth or Poor state in *Period 1* (and not just between Middle and Growth firms, as for the employees analysis). These conclusions are also supported by the second regression shown in Table 6.

Once again, by adding the control variables the main results do not significantly change. In fact, the output still shows that being in a Star or Profit position in *Period 1* is more likely to lead to a Star state in *Period 2*. The only changes occurred with respect to the regression without control variables are the ones relative to the odd ratios and to the significance. In this latter regression the odd ratios of the state have slightly increased,

and the p-values have decreased, allowing *Profit1* to become significant also at the 5% level.

As for the employees analysis, in order to find out whether there is a difference between starting from a Star state or a Profit one, a Wald test has been performed (as shown in Table 9).

Table 7. Wald test

test *Star1 = Profit1*	
Chi2 (1)	.96
Prob > Chi2	.33

In line with the result obtained in the previous test, there is no statistical difference between the two states. Once again, the results of the regressions show that, no matter how much a company is growing in *Period 1*, as long as it has high level of profitability the chances to perform well -both in terms of growth and profitability- are the same.

To sum up, both the employees and the sales analyses show that the best strategy to achieve high overall firm performance is to focus on profitability rather than on growth. The following section discusses with more details the implication of such results.

CHAPTER 6

DISCUSSION

The analyses shown in the previous chapter suggest that, no matter how much firms are growing, high profitability firms are more likely to become S*tar* companies (i.e. high profitability, high growth firms) compared to firms that start from a position of low profitability. The results presented in this thesis add therefore another empirical confirmation on the recent literature that views growth as the *output* of a successful strategy rather than the *input*. That is, it is advantageous in most situations to have "profitability first and growth later" rather than the other way around, supported by past literature. In fact, as already stated earlier in this thesis, the vast majority of past literature associates high growth firms with successful companies. Results show, however, that growth alone is not sufficient to lead companies reaching successful positions.

Furthermore, the results of this thesis are also consistent with the Resource-based View theory presented in previous chapters. In line with this theory, outputs suggest that, before going for significant growth, firms need to be profitable and therefore able to develop a competitive advantage based on the identification and successful exploitation of the uniqueness of their resource bundles. "The underlying advantage itself and the financial resources generated through high profitability make it possible for firms in this situation to achieve sound and sustainable growth – which may require building a series of temporary advantages – without having to sacrifice profitability" (Davidsson *et al.*, 2009, pg. 389). By contrast, when firms strive for high growth starting from low profitability, the latter often indicates growth must be achieved in head-to-head competition with equally attractive alternatives, which would make profitability deteriorate rather than improve. Furthermore, low-profitability firm cannot usually finance the creation of a hard-to-copy competitive advantage, while growing

(Davidsson *et al.*, 2009). As a consequence, their growth processes will turn to be neither sustainable nor helpful in order to improve companies' future profitability.

Having traced the link between profitability and VRIO resources, as suggested by the Resource-based View, it is now interesting to note how this relationship fits in the firm growth model proposed by Grandinetti and Furlan (2011) and presented in Chapter 1.3.5. The authors claim in fact that size growth, relationship growth and capability growth are all connected and interdependent. Reading the output of this thesis with the perspective provided by Furlan and Grandinetti (2011), the valuable and hard-to-imitate resources needed to become profitable and to support future growth should be obtained through the relationship and the capability growth described by the two authors controlling for firm characteristics. In fact, investments in functional and relational capabilities allow firms to build relationships with new subjects. Furthermore, investments in dynamic capabilities allow firms to undertake repositioning and diversification strategies that require a value network reconfiguration. The opposite is also true: in fact, by increasing their network, firms can have access to new resources and capabilities. Lastly, a simultaneous interdependency between relationship growth and capability growth can be found; this is particularly true for inter-firm collaborations. These three scenarios are of extreme importance when speaking of VRIO resource creation. Once these resources are built, firms are then able to develop a competitive advantage and become profitable. As the results of this thesis have shown, highly profitable companies are then likely to grow in a sustainable way and to become Star firms. Translating this last step into the framework suggested by Furlan and Grandinetti (2011), this means that relationship growth and capability growth should anticipate the growth of the third dimension: size growth.

This two-step process (i.e. first building VRIO resources and therefore become profitable and then aiming for growth) is also found in the *lean management* philosophy. In fact, this management practice maintains that successful firms have to be in the first place *efficient* firms. Lean managers would probably say "efficiency first" rather than "profitability first", as advocated by this thesis. The differences are, however, few. In fact, efficient means, first of all, no waste (whether it is of time or money). Accordingly, profitability means reducing costs, which requires limiting any type of waste.

While several similarities have been found comparing the lean management approach and the interpretation of the results of this thesis, it is important to note that being profitable does not necessarily mean being efficient, and vice versa -even though the two states are in most cases strictly related.

Next chapter discusses the major changes that have been made with respect to Davidsson *et al.* (2009)'s work. In fact, it is important to note that, while in line with one of the most central and innovative thesis about firm growth, this thesis includes several improvements.

6.1 Major Changes

With respect to Davidsson *et al.* (2009)'s work, several major changes have been made. First, the statistical method used to analyze the data. While Davidsson *et al*. (2009) have tested the differences between *Profit-Star* and *Growth-Star* transition proportions using standard *z-tests*, this thesis has used *logistic regressions*, controlling for firm characteristics.

Second, the measures used for the classification of firms into the five states have been changed. While this thesis has adopted Davidsson *et al.* (2009)'s categorization scheme of firms by growth and profitability shown in Figure 7, the nature of these two latter variables have been modified. In fact, Davidsson *et al.* (2009) calculated growth and profitability using sales growth and ROA relative to *only* one single year. For example, in order to classify a firm in one of the five different categories in year *n*, they have only taken into consideration ROA and sales growth relative to that specific year. Conversely, the analyses presented in this thesis are based on the computation of ROA and employees (or sales) growth over a period of three consecutive years. In particular, as already mentioned in Chapter 3.4, the ROA for year *n* is calculated as the arithmetic mean between ROA in year *n-1*, *n* and *n+1*. With respect to employees (or sales) growth, this thesis has used the compounded rate of growth, as in Jarillo (1989). These changes have been made in order to obtain more reliable results. In fact, by considering three consecutive years, it is more likely that, for instance, Growth companies are *really* companies characterized by high growth rates, and Profit companies are *really* companies that have achieved high level of profitability. The way Davidsson *et al.*

(2009) operated can lead to mistakes in classifying as Growth or Profit companies that have grown or have been profitable *just* for one specific year.

Third, both sales growth and employees growth have been used to calculate firm growth. While Davidsson *et al.* (2009) have only considered sales growth in their computation of firm growth, this thesis have performed logistic regressions considering both sales and employees growth. As shown in the previous chapter, major changes in the regressions are not to be found whether sales or employees growth are used. However, using both measures instead of just relying on one of them, adds strength and reliability to the results reached by this thesis.

Lastly, this thesis has not discarded *a priori* the possibility that being a Middle company could have been the best starting state in order to reach a final Star position. Conversely, in their thesis Davidsson *et al.* (2009) have only tested their hypotheses on Growth-Star and Profit-Star transitions, without comparing them to the Middle-Star transition. And what if *balanced* companies (as a matter of fact Middle companies are focusing on both dimensions in a similar way) are more likely to become successful compare to firm that focus more on either growth or profitability? While the results of this thesis do not suggest that being balanced is the best strategy, this option has not been discarded *a priori*. Furthermore, it is also important to note that, even though being a Middle firm is not the best starting state, this is better than starting as a Growth company, even if this difference is never statistically significant. What follows is that the variable that mostly influences the results is the ROA, and therefore profitability. The more a firm manages to be profitable, the more likely is to reach a Star position.

The robustness of these results is also confirmed by the results obtained by changing the firm classification method and/or the number of years taken into consideration in measuring firm growth and profitability (see Appendix D for more details).

6.2 Implications

The results of this thesis can have several implications.

From a CEO/manager perspective, these results suggest that firm growth is not necessarily a good thing. Without having first built a valuable and hard-to-copy

advantage, growing companies are less likely to reach a successful position compare to companies that have built such a resource-based competitive advantage. CEOs and managers should therefore stop relying on the wrong belief that growth almost automatically leads to above-average performances and profitability. As a matter of fact, what should they really rely on are profits. Without first assuring high level of profitability companies are less likely to perform above-average. As stated above, many similarities are to be found by comparing these conclusions with the *lean management* philosophy. By advocating "efficiency first", this management style implicitly refers to the need of a solid and sound firm structure before going for growth.

From a policy-maker point of view, the results of this thesis imply that rather than fostering companies to grow, policies should help companies becoming more profitable. In fact, if policies can help more firms become highly profitable, the problem of growth will take care of itself, since high-profitable companies are likely to perform above average in both dimensions in future periods.

For external investors the main implication is that high growth associated with low profitability should be seen as a negative rather than a positive signal of sound development.

From an academic point of view, this thesis adds empirical evidence to the recent literature about firm growth. By advocating "profitability first, growth later", in fact, this thesis maintains that without assuring first high profits, firms are not likely to reach the desirable Star state.

CHAPTER 7

CONCLUSIONS

The results of this thesis show that firms in the desirable state of Star (i.e. companies with high growth and high profitability) are more likely to originate from high profitable firms (i.e. Profit firms) than from growing firms with low profitability (i.e. Growth firms). These findings are in line with a recent stream of thought that considers firm growth as the *output* rather than the *input* of a sound development strategy. This perspective is in strong contrast with the common belief, shared amongst practitioners and researchers alike, that firm growth is synonymous of business success.

Before growing, firms should therefore be highly profitable. As a matter of fact, superior profitability is likely to be indicative of having built a resource-based competitive advantage that can in turn support a sound and sustainable growth process. Without ensuring first high profitability, firms are likely to struggle while aiming at building valuable and hard-to-copy competitive advantages.

While the effects of the recent financial crisis are still preventing the global economy from completely recovering, the old theory of firm growth has been heavily challenged and new perspectives have been introduced.

While the road to the *Stars* is still under construction, what CEOs, managers and policy-makers alike should realize is that these dark years are not only the results of *some* companies' bad *actions* yet the results of *most* companies' bad *strategies*.

BIBLIOGRAPHY

Adizes I., (1989): "Corporate Lifecycles: How and Why Corporations Grow and Die and What to Do About It", Prentice-Hall, Englewood Cliffs, New Jersey

Aldrich H., (1999): "Organizations evolving", Sage, London

Arend R. J., (2006): "Tests of the resource-based view: do the empirics have any clothes?", *Strategic Organization*, **4**(4): pp. 409-422

Barney J., (1991): "Firm resources and sustained competitive advantage", *Journal of Management*, **17**(1): pp. 99-120

Barney J., (2001): "Is the Resource-based View a useful perspective for strategic management research? Yes", *Academy of Management Review*, **26**: pp. 41-56

Barney J., Arikan A., (2001): "The resource-based view: Origins and implications", in Handbook of Strategic Management, Hitt M. A, Freeman R. E, Harrison J. S., (eds). Blackwell, Oxford, pp. 124-188

Barringer B. R., Jones F. F., Neubaum D. O., (2005): "A quantitative content analysis of the characteristics of rapid-growth firms and their founders", *Journal of Business Venturing*, **20**(5): pp. 663-687

Baum J. R., Wally S., (2003): "Strategic decision speed and firm performance", *Strategic Management Journal*, **24**: pp. 1107-1129

Beekman A. V., Robinson R. B., (2004): "Supplier partnerships and the small, high-growth firm: Selecting for success", *Journal of Small Business Management*, **42**(1): 59-77

Besanko D., Dranove D., Shanley M., (2004): "Economics of strategy", 3 ed. Wiley, New York, NY

Bhidé A., (2000): "The origin and evolution of new businesses", Oxford University Press, Oxford

Bowman C., Ambrosini V., (2003): "How the resourcebased and the dynamic capability views of the firm inform corporate-level strategy", *British Journal of Management*, **14**: pp. 204-289

Canals J., (2001): "How to think about corporate growth?", *European Management Journal* **19**(6): pp. 587-598

Capon N., Farley J. U., Hoenig S., (1990): "Determinants of financial performance: a meta-analysis", *Management Science*, **36**(10): pp. 1143-1159

Chandler G. N., Jansen E., (1992): "The founder's self-assessed competence and venture performance", *Journal of Business Venturing*, **7**(3): pp. 223-236

Chatterjee S., (2009): "The keys to successful acquisition programmes", *Long Range Planning*, **42**(2): pp. 137-163

Cho H. J., Pucic V., (2005): "Relationship between innovation, quality, growth, profitability and market value", *Strategic Management Journal*, **26**: pp. 555-575

Churchill N. C., Lewis V. L., (1983): "The five stages of firm growth", *Harvard Business Review*, **61**(3): pp. 30-50

Cloodt M., Hagedorn J., Van Kranenburg H., (2006): "Mergers and acquisitions: Their effect on the innovative performance of companies in high-tech industries", *Research Policy*, **35**: pp. 642-654

Coviello N. E., Munro H. J., (1995): "Growing the entrepreneurial firm: Networking for international market development", *European Journal of Marketing*, **29**(7): pp. 49-61

Cox L. W., Camp S. M., Ensley M. D., (2002): "Does it pay to grow? The impact of growth on profitability and wealth creation", Paper Presented at the Babson College/Kauffman Foundation Entrepreneurship Research Conference, Boulder, Colorado

Croom S. R., (2001): "The dyadic capabilities concept: examining the processes of key supplier involvement in collaborative product development", *European Journal of Purchasing & Supply Management*, **7**: pp. 29-37

Cusumano M. A., Takeishi A., (1991): "Supplier relations and management: A survey of Japanese transplants, and U.S. auto plants", *Strategic Management Journal*, **12**(8): pp. 563-588

Das T. K., Teng B., (2000): "A resource-based theory of strategic alliances", *Journal of Management*, **26**(1): pp. 31-61

Davidsson P., Steffens P., Fitzsimmons J., (2009): "Growing profitable or growing from profits: Putting the horse in front of the cart?", *Journal of Business Venturing*, **24**: pp. 388-406

Davidsson, P., Wiklund J., (2000): "Conceptual and empirical challenges in the study of firm growth", In D. Sexton & H. Landstrom (eds.) *The Blackwell Handbook of Entrepreneurship*, Oxford: Blackwell Publishers Ltd., pp. 26-44

DeCarolis D. M., Deeds D. L., (1999): "The impact of stocks and flows of organizational knowledge on firm performance: an empirical investigation of the biotechnology industry", *Strategic Management Journal*, **20**: pp. 953-986

Delmar F., (1997): "Measuring growth: Methodological considerations and empirical results", In Donckels R. & Miettinen (eds.) *Entrepreneurship and SME research: On its way to the next millennium*, Aldershot, England: Ashgate, pp. 199-216

Dobbs M., Hamilton R. T., (2007): "Small business growth: Recent evidence and new directions", *International Journal of Entrepreneurial Behaviour and Research,* **13**(5): pp. 296-322

Dyer J. H., (1997): "Effective interfirm collaboration: How firms minimize transaction costs and maximize transaction value", *Strategic Management Journal*, **18**: pp. 553-556

Dyer J. H., Singh H., (1998): "The relational view: Cooperative strategy and sources of interorganizational competitive advantage" *Academy of Management Review*, **23**(4): pp. 660-679

Eisenhardt K. M., Martin J. A., (2000): "Dynamic capabilities: What are they?", *Strategic Management Journal,* **21**(10-11): pp. 1105-1121

Eisenhardt K. M., Santos F. M., (2002): "Knowledge-based view: A new theory of strategy? In A. Pettigrew, H. Thomas, & R. Whittington (eds.), *Handbook of strategy and management*, pp. 139-164. London, UK: Sage

Eisenhardt K. M., Schoonhoven C. B., (1996): "Resource-based View of strategic alliance formation: strategic and social effect in entrepreneurial firms", *Organization Science*, **7**(2): pp. 136-150

Flamholtz E. G., (1986): "How to Make the Transition from an Entrepreneurship to a Professionally Managed Firm*", *Jossey-Bass*, San Francisco, California

Furlan A., Grandinetti R., (2011): "How do firms grow? A multidimensional approach", *European Management Journal*

Furlan A., Grandinetti R., Camuffo A., (2007): "How do subcontractors evolve?", International Journal of Operations & Production Management, **27**(1): pp. 69-89

Galbraith J., (1982): "The stages of growth", *Journal of Business Strategy*, **3**(4): pp. 70-79

Garnsey E., (1998): "A theory of the early growth of the firm", *Industrial and Corporate Change,* **7**(3): pp. 523-556

Ghosal S., Moran P., (1995): "Bad for practice: A critique of the Transaction Cost Theory", in D. Moore (eds.), *Academy of Management* Best Papers Proceedings 1995, Charleston, S.C., *Academy of Management*, pp. 12-16

Grant R. M., (1996): "Toward a knowledge-based theory of the firm", *Strategic Management Journal*, **17**: pp. 109-122

Greiner L. E., (1972): "Evolution and revolution as organizations grow", *Harvard Business Review*, **50**(4): pp. 37-46

Greiner L. E., (1998): "Evolution and revolution as organizations grow", *Harvard Business Review*, **76**(4): pp. 55-67

Greve H. R., (2008): "A behavioral theory of firm growth: Sequential attention to size and performance goals", *The Academy of Management Journal*, **51**(3): pp. 476-494

Gulati R., (1998): "Alliances and networks", *Strategic Management Journal*, **19**: pp. 293-318

Gulati R., (1999): "Network location and learning: The influence of network resources and firm capabilities on alliance formation", *Strategic Management Journal*, **20**(5): pp. 397-420

Gulati R., Nohria N., Zaheer A., (2000): "Strategic networks", *Strategic Management Journal*, **21**: pp. 203-215

Hamel G., Doz Y., Prahalad C. K., (1989): "Collaborate with your competitors and win", *Harvard Business Review*, **67**(1): pp. 133-139

Hanks S. H., Watson, C. J., Jansen, E. and Chandler, G. N. (1993): "Tightening the life-cycle construct: a taxonomic study of growth stage configurations in high-technology organizations", *Entrepreneurship Theory and Practice,* **18**: pp. 5-30

Helfat C. E., Finkelstein S., Mitchell W., Peteraf M. A., Singh H., Teece D. J., Winter S. G., (2007): "Dynamic capabilities: Understanding strategic change in organizations", New York: John Wiley

Helfat C. E., Peteraf M. A., (2003): "The dynamic resource-based view: Capability lifecycles", *Strategic Management Journal*, **24**: pp. 997-1010

Hennart J. F., (1991): "The transaction costs theory of joint ventures: An empirical study of Japanese subsidiaries in the United States", *Management Science*, **37**: pp. 483-97

Homburg C., Bucerius M., (2006): "Is speed of integration really a success factor of mergers and acquisitions? An analysis of the role of internal and external relatedness", *Strategic Management Journal*, **27**(4): pp. 347-367

Hoy F., McDougall P. P., D'Souza D. E., (1992): "Strategies and environments of high-growth firms", in D.L. Sexton and J.D. Kasarda (eds.) *The state of the art of entrepreneurship*, Boston, PWS-Kent, pp. 341-357

Jarillo J. C., (1989): "Entrepreneurship and growth: The strategic use of external resources", *Journal of Business Venturing*, **4**(2): 133-147

Jenkins M., Ambrosini V., (2007): "Advance Strategic Management: A Multi Perspective Approach", Palgrave MacMillan

Katz M. L., Shapiro C., (1985): "Network externalities, competition, and compatibility", *American Economic Review*, **75**(3): pp. 424-440

Kazanjian R.K., (1988): "Relation of dominant problems to stages of growth in technology-based new ventures", *Academy of Management Journal*, **31**(2): pp. 257-279

Khanna T., Palepu K., (1999): "The right way to restructure conglomerates in emerging markets", *Harvard Business Review*, **77**(4): pp. 125-143

Kimberly J. R., Miles R. H., (1980): "The Organizational Life Cycle: New Perspectives for Organizational Theory and Research", *Jossey-Bass*, San Francisco

Kogut B., Zander U., (1992): "Knowledge of the firm, combinative capabilities, and the replication of technology", *Organization Science*, **3**(3): pp. 383-397

Kotabe M., Martin X., Domoto H., (2003): "Gaining from vertical partnerships: Knowledge transfer, relationship duration, and supplier performance improvement in the U.S. and Japanese automotive industries", *Strategic Management Journal*, **24**(4): 293-316

Kraaijenbrink J., Spender J., Groen A., (2010): "The Resource-based View: A review and assessment of its critiques", *Journal of Management*, **36**(1): pp. 349-372

Ireland R. D., Hitt M. A., Sirmon D. G., (2007): "Managing firm resources in dynamic environments to create value: Looking inside the black box", *Academy of Management Journal*, **32**(1): pp. 273-292

Leenders R. T., Gabbay S. M., (1999): "An agenda for the future", in Corporate Social Capital and Liability (eds), Kluwer, New York, pp. 483-494

Lichtenstein B. B., Levie J., Hay M., (2007): "Stage theory is dead! Long live the new stages theory of organizational change", University of Massachusetts (UMass) Boston - College of Management, Working Thesis 1017

Lieberman M. B., Montgomery D. B., (1988): "First-mover advantages", *Strategic Management Journal*, **9**: pp. 41-58

Lorenzoni G., Lipparini A., (1999): "The leveraging of interfirm relationships as a distinctive organizational capability: A longitudinal study", *Strategic Management Journal*, **20**(4): pp. 317-338

Lockett A., Wiklund J., Davidsson P., Girma S., (2011): "Organic and acquisitive growth: Re-examining, testing and extending Penrose's growth theory", *Journal of Management Studies*, **48**(1): pp. 48-74

MacDuffie J. P., Helper S., (1997): "Creating lean suppliers: Diffusing lean production through the supply chain", *California Management Review*, **39**(4): pp. 118-151

Markman G. D., Gartner W. B., (2002): "Is extraordinary growth profitable? A study of Inc. 500 high-growth companies", *Entrepreneurship Theory and Practice*, **27**(1): pp. 65-75

McMahon R. G. P., (1998): "Stage models of SME growth reconsidered", *Small Enterprise Research,* **6**(2): pp. 20-36

Mendelson H., (2000): "Organizational architecture and success in the information technology industry", *Management Science*, **46**(4): pp. 513-529

Merton R. C., (1968): "The Matthew Effect in science", *The Sociology of Science*, Storer NW (eds.). University of Chicago Press, Chicago, IL, pp. 439-459

Merz G. R., Weber P. B., Laetz V. B., (1994): "Linking small business management with entrepreneurial growth", *Journal of Small Business Management,* **32**(4): pp. 48-60

Miller D., Friesen P. H., (1984): "A longitudinal study of the corporate life cycle", *Management Science* **30**(10): pp. 1161-1183

Mitchell W., Capron L., Anand J., (2007): "Acquisition-based dynamic capabilities", *Dynamic capabilities: Understanding strategic change in organizations*, ed. C. E. Helfat Blackwell, Oxford

Osborn R. N., Baughn C., (1990): "Forms of interorganizational governance for multinational alliances", *Academy of Management Journal*, **33**(3): pp. 503-519

Peng M. W., (2004): "Outside directors and firm performance during institutional transition", *Strategic Management Journal*, **25**: pp. 453-471

Penrose E. T., (1959): "The theory of the growth of the firm", Basil Blackwell, Oxford

Peteraf M. A., (1993): "The cornerstones of competitive advantage: A resource-based view", *Strategic Management Journal*, **14**(3): pp. 179-192

Peteraf M. A., Barney J., (2003): "Unraveling the resource-based tangle", *Managerial and Decision Economics*, **24**(4): pp. 309-323

Petroni A., Panciroli B., (2002): "Innovations as a determinant of suppliers roles and performance: An empirical study in the food machinery industry", *European Journal of Purchasing and Supply Management*, **8**(3): pp. 135-149

Pettigrew A., Tomas H., Whittington R., (2006): "Handbook of Strategy and Management", Sage

Phelps R., Adams R., Bessant J., (2007): "Life cycles of growing organizations: A review with implications for knowledge and learning", *International Journal of Management Reviews,* **9**(1): pp. 1-30

Podolny J. M., (1994): "Market uncertainty and the social character of economic exchange", *Administrative Science Quarterly*, **39**: pp. 458-483

Polanyi M., (1966): "The tacit dimension", New York: Anchor Day Books

Porter M., (1996): "What is strategy?", *Harvard Business Review*, **74**(6): pp. 61-78

Priem R. L., Butler J. E., (2001): "Is the Resource-based View a useful perspective for strategic management research?", *Academy of Management Review*, **26**(1): pp. 22-40

Quinn R. E., Cameron K.S., (1983): "Organizational Life Cycles and Shifting Criteria of Effectiveness", *Management Sci.*, **9**: pp. 33-51

Ramezani C. A., Soenen L., Jung A., (2002): "Growth, corporate profitability, and value creation", *Financial Analysts Journal*, **62**(6): pp. 56-67

Schoonhoven C. B., Romanelli E., (2001): "The entrepreneurship dynamic: origin of entrepreneurship and the evolution of industries", Standford University Press

Scott M., Bruce R., (1987): "Five stages of growth in small business", *Long Range Planning*, **20**(3): pp. 45-52

Sexton D. L., Pricer R. W., Nenide B., (2000): "Measuring performance in high-growth firms", Paper Presented at the Babson College/Kauffman Foundation Entrepreneurship Research Conference, Babson College, MA

Shan W., (1990): "An empirical analysis of organizational strategies by entrepreneurial hightechnology firms", *Strategic Management Journal*, **11**(2): pp. 129-139

Shuman J. C., Seeger J. A., (1986): "The theory and practice of strategic management in smaller rapid growth firms", *American Journal of Small Business*, **11**(1): pp. 7-18

Singh H., Dyer J. H., Kale P., (2007): "Relational capabilities: Drivers and implications", *Dynamic capabilities: Understanding strategic change in organizations*, ed. C. E. Helfat. Blackwell, Oxford

Smith K. G., Mitchell T. R., Summer C. E., (1985): "Top level management priorities in different stages of the organizational life cycle", *Academy of Management Journal,* **28**(4): pp. 799-820

Stern C. W., Stalk J., (1998): "Perspectives on Strategy from the Boston Consulting Group", Wiley, New York

Stevenson H. H., Jarillo, J. C., (1990): "A paradigm of entrepreneurship: Entrepreneurial management", *Strategic Management Journal*, **11**(S1): pp. 17-27

Stuart T. E., (2000): "Interorganizational alliances and the performance of firms: A study of growth and innovation rates in a high-technology industry", Strategic Management Journal, **21**: pp. 791-811

Teece D. J., (1987): "Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy", *The competitive challenge: Strategies for industrial innovation and renewal*, Cambridge, MA: Ballinger, pp. 185-219

Teece D. J., Pisano G., Shuen A., (1997): "Dynamic capabilities and strategic management" *Strategic Management Journal*, **18**(7): 509-533

Vinnell R., Hamilton R. T., (1999): "A historical perspective on small firm development", *Entrepreneurship Theory and Practice*, **4**: pp. 5-18

Walter A., Auer M., Ritter T., (2005): "The impact of network capabilities and entrepreneurial orientation on university spin-off performance", *Journal of Business Venturing*, **21**(4): pp. 541-567

Wiklund J., McKelvie A., (2010): "Advancing firm growth research: A focus on growth mode instead of growth rate", *Entrepreneurship Theory and Practice,* **34**(2): pp. 261-288

Zander I., Zander U., (2005): "The inside track: On the important (but neglected) role of customers in the resource-based view of strategy and firm growth", *Journal of Management Studies*, **42**(8): pp. 1519-1548

Zook C., Allen T., (2001): "Profit from the core: Growth strategies in an era of turbulence", Harvard Business School Press

APPENDICES

APPENDIX A

THEORIES OF ALLIANCE FORMATION

Several theoretical explanations of alliances formation and value have received scholarly attention. This thesis uses the theoretical lens of the Resource-Based View; there are however two other theories for alliances formation. Although this is not the main objective of the thesis, a briefly description of these different theories are presented. There are basically three different schools of thoughts: *transaction cost economics* (TCE), *social network* and *Resource-based View* (Ireland *et al.,* 2002).

- Transaction Cost Economics (TCE)

TCE emphasizes *transaction cost efficiency* as being the main reason for strategic cooperation. While helpful in predicting vertical integration among suppliers and buyers mostly in mature industries (Hennart 1991, Osborn and Baughn 1990), TCE does not capture many of the advantages resulting from strategic alliances. For instance, it does not take into consideration important aspects such as learning, creation of legitimacy, and fast market entry (Eisenhardt and Schoonhoven, 1996). As Ghosal and Moran (1995) argue, the theory is most relevant to static efficiency and routine situations.

- Social Network theory

The social network theory argues, on the other hand, that strategic actions are affected by the social context in which the firm is embedded (Gulati, 1999). Originally applied to sociological studies, this theory maintains that what really matter are the relationships and ties a firm has within its network and not the attributes of the individual organization itself. According to Leenders and Gabbay (1999), social theory suggests that a firm's external networks form a major contributor to its performance. This

approach has turned out to be useful for explaining many real-world phenomena, but leaves less room for individual firms to influence their success.

- Resource-based View theory

The third school of thought is the Resource-based View theory, which this thesis is based upon. Again, Resource-based View suggests that firms use alliances in order to locate the optimal resource configuration (Das and Teng, 2000). In comparison with TCE, the Resource-based View theory as well as the social network theory underline, first, strategic and social factors and not transaction cost; second, characteristics of the firm such as strategy, resources, etc., and not the transactions; lastly, both social network theory and Resource-based View emphasize a theoretical logic of needs and opportunities, and not efficiency (Eisenhardt and Schoonhoven, 1996). Since in its historical origin the Resource-based View is closely connected with firm growth and, in particular, the concept of *profitable growth* (Davidsson, 2009), this approach is here preferred to the social network theory and TCE.

APPENDIX B

CRITIQUES TO THE RESOURCE-BASED VIEW THEORY

The main criticism addressed to the Resource-based View is its "overemphasis on the possession of individual resources and insufficient acknowledgement of the importance of bundling resources and of the human involvement in assessing and creating value. Also, it does not sufficiently capture the essence of competitive advantage, neither statically nor dynamically" (Kraaijenbrink *et al.*, 2010, pg. 359).

As already mentioned in previous sections, the Resource-based View suggests that possessing valuable and rare resources provides the basis for value creation. This value may be sustainable when these resources are also inimitable and lack substitutes (Barney, 1991). Further criticism on this theory includes that merely possessing such resources does not guarantee the development of competitive advantages or the creation of value (Barney and Arikan, 2001). Priem and Butler (2001) maintain that the Resource-Based View offers in fact a static view of competitive advantage and that there is minimal theory explaining "how" managers/firms transform resources to create value. According to these authors, the Resource-based View requires therefore further elaboration to explain the link between the management of resources and the creation of value.

Furthermore, Porter (1996) argues that the Resource-based View does not address appropriately the question of explicating the process by which advantage is created, and that activities are a more appropriate focus of analysis than resources.

APPENDIX C

DATASET'S DESCRIPTIVE STATISTICS

- EMPLOYEES ANALYSIS

Table 8. Control variables - descriptive statistics

Variable	n	Mean	S. D.	Min	1st q.	Median	3rd q.	Max
debt1	218	.70	2.69	-10.08	.18	.38	.86	20.09
ta1	218	2.5e+9	1.1e+10	5.6e+5	4.6e+7	2.0e+8	7.8e+8	1.2e+11
activity	218	23.96	19.05	5.00	12.00	18.00	27.00	155.00
empl1	218	4339.87	15913.89	1.00	136.67	419.00	1982.33	1.5e+5

Table 9. High-tech companies

high_tech	Freq.	Percent
0	79	36.24
1	139	63.76
TOT	218	100.00

Among high-tech companies:

- ➢ 3 (2.1%) are in the aerospace and defense
- ➢ 24 (17.3%) are in the computers and office machinery
- ➢ 32 (23.0%) are in the pharmaceutical
- ➢ 80 (57.6%) are in the electronics and communications sector

- SALES ANALYSIS

Table 10. Control variables - descriptive statistics

Variable	n	Mean	S. D.	Min	1st q.	Median	3rd q.	Max
debt1	239	.66	2.55	-10.08	.19	0.37	.80	20.09
ta1	239	2.3e+9	1.0e+10	1.3e+6	5.0e+7	2.1e+8	7.5e+8	1.2e+11
activity	239	24.47	18.49	6.00	13.00	19.00	28.00	156.00
empl1	239	4079.01	15229.06	3.67	144.00	434.33	2152.00	1.5e+5

Table 11. High-tech companies

high_tech	Freq.	Percent
0	101	38.11
1	164	61.89
TOT	265	100.00

Among high-tech companies:

- ➢ 4 (1.7%) are in the aerospace and defense
- ➢ 40 (16.7%) are in the computers and office machinery
- ➢ 55 (23.0%) are in the pharmaceutical
- ➢ 140 (58.6%) are in the electronics and communications sector

APPENDIX D

OTHER ATTEMPTS

As already stated in Chapter 4, several other attempts have been tried. In fact, by changing the firm categorization method and/or the number of years taken into consideration in measuring firm growth and profitability, many results have been obtained. For the sake of clarity and concision, only one single scheme has been shown in the central part of the thesis. However, it is important to note that all other attempts have shown similar patterns. In what follows, two examples of different variations of the scheme presented in Chapter 4 are shown.

The first one, is a close replication of Davidsson *et al.* (2009)'s work. While the firm classification scheme is the same used in this thesis, following these authors, only one single year has been considered in computing firm growth and profitability. Furthermore, three different time periods have been considered. Specifically, *Period 1* refers to year 2004, while *Period 2* refers to year 2005, 2006 and 2007, for the 1-year, 2-year and 3-year transitions, respectively. As shown in Table 12 through 23 , the results are in line with the ones presented in this thesis and the ones obtained by Davidsson *et al.* (2009), even if sometimes differences are not significant due to small sample sizes.

• _Davidsson '04-'05 (empl)_

Table 12. Cross-tabulation for firms in _Period 1_ and _Period 2_ (in parenthesis column percentage)

		PERIOD 1					
		Star1	Profit1	Middle1	Growth1	Poor1	TOT
P E R I O D 2	Star2=1	40 (58.0)	17 (34.0)	10 (12.2)	1 (1.6)	4 (5.2)	72 (21.2)
	Star2=0	29 (42.0)	33 (66.0)	72 (87.8)	60 (98.4)	73 (94.8)	267 (78.8)
	TOT	69 (100.0)	50 (100.0)	82 (100.0)	61 (100.0)	77 (100.0)	339 (100.0)

Table 13. Employees analysis: logistic regressions

	Star2 = 1			
	Logistic regression		_Logistic regression with control variables_	
	n = 339		n = 339	
	ODDS RATIO	_p-value_	ODDS RATIO	_p-value_
Star1	9.93	***	9.25	***
Profit1	3.71	**	3.32	**
Growth1	.12	**	.12	**
Poor1	.39		.40	
debt1	-	-	.97	
ta1	-	-	1.00	*
high_tech	-	-	.81	
activity	-	-	1.00	
empl1	-	-	1.00	

- ## *Davidsson '04-'06 (empl)*

Table 14. Cross-tabulation for firms in *Period 1* and *Period 2* (in parenthesis column percentage)

		PERIOD 1					
		Star1	Profit1	Middle1	Growth1	Poor1	TOT
P E R I O D 2	Star2=1	29 (44.6)	16 (34.8)	18 (23.4)	4 (7.1)	3 (4.2)	70 (22.2)
	Star2=0	36 (55.4)	30 (65.2)	59 (76.6)	52 (92.9)	69 (95.8)	246 (77.8)
	TOT	65 (100.0)	46 (100.0)	77 (100.0)	56 (100.0)	72 (100.0)	316 (100.0)

Table 15. Employees analysis: logistic regressions

	Star2 = 1			
	Logistic regression		*Logistic regression with control variables*	
	n = 316		n = 316	
	ODDS RATIO	*p-value*	ODDS RATIO	*p-value*
Star1	2.64	**	2.67	**
Profit1	1.75		1.78	
Growth1	.25	**	.25	**
Poor1	.14	**	.15	**
debt1	-	-	.97	
ta1	-	-	1.00	
high_tech	-	-	1.13	
activity	-	-	1.00	
empl1	-	-	1.00	

• _Davidsson '04-'07 (empl)_

Table 16. Cross-tabulation for firms in _Period 1_ and _Period 2_ (in parenthesis column percentage)

		PERIOD 1					
		Star1	Profit1	Middle1	Growth1	Poor1	TOT
P E R I O D 2	Star2=1	26 (58.0)	10 (78.4)	12 (16.7)	4 (7.4)	6 (9.0)	58 (19.2)
	Star2=0	36 (42.0)	37 (21.3)	60 (83.3)	50 (92.6)	61 (91.0)	244 (80.2)
	TOT	62 (100.0)	47 (100.0)	72 (100.0)	54 (100.0)	67 (100.0)	302 (100.0)

Table 17. Employees analysis: logistic regressions

	Star2 = 1			
	Logistic regression		_Logistic regression with control variables_	
	n = 302		n = 302	
	ODDS RATIO	_p-value_	ODDS RATIO	_p-value_
Star1	3.61	**	3.67	**
Profit1	1.35		1.19	
Growth1	.40		.38	
Poor1	.49		.51	
debt1	-	-	.89	
ta1	-	-	1.00	*
high_tech	-	-	.66	
activity	-	-	1.00	
empl1	-	-	1.00	*

• _Davidsson '04-'05 (sales)_

Table 18. Cross-tabulation for firms in _Period 1_ and _Period 2_ (in parenthesis column percentage)

		PERIOD 1					
		Star1	Profit1	Middle1	Growth1	Poor1	TOT
P E R I O D 2	Star2=1	47 (53.4)	12 (26.7)	16 (15.1)	6 (9.7)	2 (2.3)	83 (21.4)
	Star2=0	41 (46.6)	33 (73.3)	90 (84.9)	56 (90.3)	85 (97.7)	305 (78.6)
	TOT	88 (100.0)	45 (100.0)	106 (100.0)	62 (100.0)	87 (100.0)	388 (100.0)

Table 19. Sales analysis: logistic regressions

	Star2 = 1			
	Logistic regression		Logistic regression with control variables	
	n = 388		n = 366	
	ODDS RATIO	_p-value_	ODDS RATIO	_p-value_
Star1	6.45	***	5.89	***
Profit1	2.05	*	1.75	
Growth1	.60		.54	
Poor1	.13	**	.13	**
debt1	-	-	.98	
ta1	-	-	1.00	**
high_tech	-	-	.62	
activity	-	-	1.00	
empl1	-	-	1.00	

• _Davidsson '04-'06 (sales)_

Table 20. Cross-tabulation for firms in _Period 1_ and _Period 2_ (in parenthesis column percentage)

<table>
<tr><td></td><td></td><td colspan="6" align="center">P E R I O D   1</td></tr>
<tr><td></td><td></td><td>Star1</td><td>Profit1</td><td>Middle1</td><td>Growth1</td><td>Poor1</td><td>TOT</td></tr>
<tr><td rowspan="6">P
E
R
I
O
D

2</td><td>Star2=1</td><td>40
(46.5)</td><td>12
(31.6)</td><td>15
(15.1)</td><td>8
(14.8)</td><td>4
(4.7)</td><td>79
(21.8)</td></tr>
<tr><td>Star2=0</td><td>46
(53.5)</td><td>26
(68.4)</td><td>84
(84.9)</td><td>46
(85.2)</td><td>81
(95.3)</td><td>283
(78.2)</td></tr>
<tr><td>TOT</td><td>86
(100.0)</td><td>38
(100.0)</td><td>99
(100.0)</td><td>54
(100.0)</td><td>85
(100.0)</td><td>362
(100.0)</td></tr>
</table>

Table 21. Sales analysis: logistic regressions

<table>
<tr><td></td><td colspan="4" align="center">Star2 = 1</td></tr>
<tr><td></td><td colspan="2" align="center">Logistic regression</td><td colspan="2" align="center">Logistic regression with control variables</td></tr>
<tr><td></td><td colspan="2" align="center">n = 362</td><td colspan="2" align="center">n = 340</td></tr>
<tr><td></td><td>ODDS RATIO</td><td><i>p-value</i></td><td>ODDS RATIO</td><td><i>p-value</i></td></tr>
<tr><td>Star1</td><td>4.87</td><td>***</td><td>4.76</td><td>***</td></tr>
<tr><td>Profit1</td><td>2.58</td><td>**</td><td>2.85</td><td>**</td></tr>
<tr><td>Growth1</td><td>.97</td><td></td><td>.90</td><td></td></tr>
<tr><td>Poor1</td><td>.28</td><td>**</td><td>.27</td><td>**</td></tr>
<tr><td>debt1</td><td>-</td><td>-</td><td>1.00</td><td></td></tr>
<tr><td>ta1</td><td>-</td><td>-</td><td>1.00</td><td></td></tr>
<tr><td>high_tech</td><td>-</td><td>-</td><td>1.16</td><td></td></tr>
<tr><td>activity</td><td>-</td><td>-</td><td>1.00</td><td></td></tr>
<tr><td>empl1</td><td>-</td><td>-</td><td>1.00</td><td></td></tr>
</table>

• _Davidsson '04-'07 (sales)_

Table 22. Cross-tabulation for firms in _Period 1_ and _Period 2_ (in parenthesis column percentage)

		PERIOD 1					
		Star1	Profit1	Middle1	Growth1	Poor1	TOT
P E R I O D 2	Star2=1	26 (33.3)	14 (37.8)	20 (20.6)	4 (8.0)	7 (9.1)	71 (20.9)
	Star2=0	52 (67.7)	23 (62.2)	77 (79.4)	46 (92.0)	70 (90.9)	268 (79.1)
	TOT	78 (100.0)	37 (100.0)	97 (100.0)	50 (100.0)	77 (100.0)	339 (100.0)

Table 23. Sales analysis: logistic regressions

	Star2 = 1			
	Logistic regression		Logistic regression with control variables	
	n = 339		n = 320	
	ODDS RATIO	_p-value_	ODDS RATIO	_p-value_
Star1	1.93	*	2.07	*
Profit1	2.34	**	3.09	**
Growth1	.33	*	.35	*
Poor1	.39	**	.39	*
debt1	-	-	.97	
ta1	-	-	1.00	
high_tech	-	-	.92	
activity	-	-	.99	
empl1	-	-	1.00	

Another variation made with respect to the analysis proposed in Chapter 4 is shown in Table 24 through 35. In this case, while the number of years taken into consideration in order to compute firm growth and profitability has been held as in the case proposed before, the classification scheme has been changed. In fact, the state Middle has been left out. A visual representation of this new scheme is shown in Figure 9.

Figure 9. Alternative categorization scheme of firms by growth and profitability

Without the Middle state the logistic regressions become as follows:

$$P(Star_2 = 1) = \beta_1 Star_1 + \beta_2 Profit_1 + \beta_3 Growth_1 + \beta_4 Poor_1$$

And, for the logistic regression with the control variables:

$$P(Star_2 = 1) =$$
$$= \beta_1 Star_1 + \beta_2 Profit_1 + \beta_3 Growth_1 + \beta_4 Poor_1 + \beta_5 debt_1 + \beta_6 ta_1 + \beta_7 high\_tech + \beta_8 activity + \beta_9 empl_1$$

It is important to note that, in this case, the state Growth has been chosen as baseline. All the results have to be therefore compared to this latter firm state.

• _Alternative '04-'05 (empl)_

Table 24. Cross-tabulation for firms in _Period 1_ and _Period 2_ (in parenthesis column percentage)

		PERIOD 1				
		Star1	Profit1	Growth1	Poor1	TOT
PERIOD 2	Star2=1	60 (65.5)	27 (35.1)	2 (2.6)	7 (7.5)	96 (28.3)
	Star2=0	33 (35.5)	50 (64.9)	74 (97.4)	86 (92.5)	243 (71.7)
	TOT	93 (100.0)	77 (100.0)	76 (100.0)	93 (100.0)	339 (100.0)

Table 25. Employees analysis: logistic regressions

	Star2 = 1			
	Logistic regression		_Logistic regression with control variables_	
	n = 339		n = 339	
	ODDS RATIO	_p-value_	ODDS RATIO	_p-value_
Star1	67.27	***	72.52	***
Profit1	19.98	***	22.07	***
Poor1	3.01		3.25	
debt1	-	-	.97	
ta1	-	-	1.00	*
high_tech	-	-	.94	
activity	-	-	.99	
empl1	-	-	1.00	*

• *Alternative '04-'06 (empl)*

Table 26. Cross-tabulation for firms in *Period 1* and *Period 2* (in parenthesis column percentage)

		PERIOD 1				
		Star1	Profit1	Growth1	Poor1	TOT
P E R I O D 2	Star2=1	47 (54.0)	26 (36.6)	8 (11.3)	8 (9.2)	89 (28.2)
	Star2=0	40 (46.0)	45 (63.4)	63 (88.7)	79 (90.8)	227 (71.8)
	TOT	87 (100.0)	71 (100.0)	71 (100.0)	87 (100.0)	316 (100.0)

Table 27. Employees analysis: logistic regressions

	Star2 = 1			
	Logistic regression		*Logistic regression with control variables*	
	n = 316		n = 316	
	ODDS RATIO	*p-value*	ODDS RATIO	*p-value*
Star1	9.25	***	10.04	***
Profit1	4.55	***	5.03	***
Poor1	.80		.85	
debt1	-	-	.96	
ta1	-	-	1.00	
high_tech	-	-	.96	
activity	-	-	1.00	
empl1	-	-	1.00	

• _Alternative '04-'07 (empl)_

Table 82. Cross-tabulation for firms in _Period 1_ and _Period 2_ (in parenthesis column percentage)

		PERIOD 1				
		Star1	Profit1	Growth1	Poor1	TOT
P E R I O D 2	Star2=1	34 (42.0)	26 (37.1)	8 (11.4)	12 (14.8)	80 (26.5)
	Star2=0	47 (58.0)	44 (62.9)	62 (88.6)	69 (85.2)	222 (73.5)
	TOT	81 (100.0)	70 (100.0)	70 (100.0)	81 (100.0)	302 (100.0)

Table 29. Employees analysis: logistic regressions

	Star2 = 1			
	Logistic regression		_Logistic regression with control variables_	
	n = 302		n = 302	
	ODDS RATIO	_p-value_	ODDS RATIO	_p-value_
Star1	5.61	***	5.03	***
Profit1	4.58	***	3.37	**
Poor1	1.35		1.18	
debt1	-	-	1.00	
ta1	-	-	1.00	
high_tech	-	-	.98	
activity	-	-	1.02	**
empl1	-	-	1.00	

- ## *Alternative '04-'05 (sales)*

Table 30. Cross-tabulation for firms in *Period 1* and *Period 2* (in parenthesis column percentage)

		PERIOD 1				
		Star1	Profit1	Growth1	Poor1	TOT
PERIOD 2	Star2=1	68 (58.6)	26 (33.3)	11 (14.1)	9 (7.8)	114 (29.4)
	Star2=0	48 (41.4)	52 (66.7)	67 (85.9)	107 (92.2)	274 (70.6)
	TOT	116 (100.0)	78 (100.0)	78 (100.0)	116 (100.0)	388 (100.0)

Table 31. Sales analysis: logistic regressions

	Star2 = 1			
	Logistic regression		*Logistic regression with control variables*	
	n = 388		n = 366	
	ODDS RATIO	*p-value*	ODDS RATIO	*p-value*
Star1	8.63	***	9.21	***
Profit1	3.05	**	3.13	**
Poor1	.51		.58	
debt1	-	-	.90	*
ta1	-	-	1.00	**
high_tech	-	-	.70	
activity	-	-	1.01	
empl1	-	-	1.00	**

• _Alternative '04-'06 (sales)_

Table 32. Cross-tabulation for firms in _Period 1_ and _Period 2_ (in parenthesis column percentage)

		PERIOD 1				
		Star1	Profit1	Growth1	Poor1	TOT
P E R I O D 2	Star2=1	56 (49.6)	29 (42.6)	12 (17.6)	11 (9.7)	108 (29.8)
	Star2=0	57 (50.4)	39 (57.4)	56 (82.4)	102 (90.3)	254 (70.2)
	TOT	113 (100.0)	68 (100.0)	68 (100.0)	113 (100.0)	362 (100.0)

Table 33. Sales analysis: logistic regressions

	Star2 = 1			
	Logistic regression		_Logistic regression with control variables_	
	n = 362		n = 340	
	ODDS RATIO	_p-value_	ODDS RATIO	_p-value_
Star1	4.58	***	4.89	***
Profit1	3.47	**	3.83	**
Poor1	.50		.52	
debt1	-	-	.99	
ta1	-	-	1.00	
high_tech	-	-	1.33	
activity	-	-	1.00	
empl1	-	-	1.00	

- *Alternative '04-'07 (sales)*

Table 34. Cross-tabulation for firms in *Period 1* and *Period 2* (in parenthesis column percentage)

		P E R I O D 1				
		Star1	Profit1	Growth1	Poor1	TOT
P E R I O D 2	Star2=1	43 (40.9)	27 (42.2)	14 (21.5)	14 (13.3)	98 (28.9)
	Star2=0	62 (59.1)	37 (57.8)	51 (78.5)	91 (86.7)	241 (71.1)
	TOT	105 (100.0)	64 (100.0)	65 (100.0)	105 (100.0)	339 (100.0)

Table 35. Sales analysis: logistic regressions

	Star2 = 1			
	Logistic regression		*Logistic regression with control variables*	
	n = 339		n = 320	
	ODDS RATIO	*p-value*	ODDS RATIO	*p-value*
Star1	2.53	**	2.30	**
Profit1	2.66	**	1.88	
Poor1	.56		.50	*
debt1	-	-	1.01	
ta1	-	-	1.00	
high_tech	-	-	1.04	
activity	-	-	1.01	
empl1	-	-	1.00	

ACKNOWLEDGEMENT