Corporate Entrepreneurship as a Business Development Strategy.

KENT THORÉN

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Department of Industrial Management
School of Industrial Engineering and Management
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A thesis submitted in partial fulfillment of the requirements for the Degree of Doctor of Engineering, to be presented with due permission for public examination and criticism, at the Royal Institute of Technology.
Drive thy business or it will drive thee.

- Benjamin Franklin
Abstract

Previous research has generated a substantial body of knowledge regarding the exploration and exploitation of opportunities, two of the main manifest activities of entrepreneurship. This thesis does not primarily examine any of these activities; instead it investigates an important question regarding what happens between them. It seeks to answer why some of the identified opportunities are selected for exploitation. It does so by building on, and contributing to, a research stream that struggles with the link between the entrepreneurial activity of firms and theory about strategy.

One of the main contributions of this thesis is the identification of a number of strategic motive dimensions that are associated with the pursuit of corporate ventures. It also demonstrates how these motives are related to significant venture differences, thereby connecting corporate entrepreneurship to strategy in a means-ends relationship. In other words, it provides insight into how strategy is the why of entrepreneurship, and entrepreneurship is the how of strategies (that involve business development).

The analysis was based on quantitative data from 274 venture attempts in 222 firms, belonging to a population of 1737 small- and medium-sized manufacturing firms in Sweden. Target respondents were the CEO:s.

The findings indicate that venture selection can be influenced by both offensive and defensive strategic motives. In addition, it turned out that ventures can be of both proactive and reactive nature. Together, these two dimensions describe how the venture relates to the firm’s strategic circumstances. To better understand top managers’ intentions, the two dimensions were complimented with measurements of what the firm tries to affect with the venture, i.e. to which facet of business the venture efforts are directed (economy, competition, or competence development). The three dimensions, identified through factor analysis, were labeled “posture”, “adaptive style”, and “orientation”. Alternative non-strategic motives, as well as items for validity evaluation, were included in the survey for comparison. Combinations of the motive dimensions were then presented as “motive profiles”, for four types of ventures identified through clustering techniques.

Furthermore, another important contribution is the examination of Roberts & Berry’s hypothesis: That the extent and direction of business development determine the amount of uncertainty faced during venture execution, which in turn is proposed to influence the probability of a positive outcome. Regarding these issues, the study was able to refine the mixed findings in previous research, through the investigation of larger firm- and venture-level samples. The obtained results imply that the distance between the venture and the current business of the firm, in terms of products and technologies, is unimportant for venture outcome. However, a small negative effect of market uncertainty, in turn related to market development distance, was confirmed.
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Kent Thorén
School of Industrial Engineering and Management
Royal Institute of Technology
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1 INTRODUCTION

The process whereby firms extend or adapt their business activities can be referred to as
business development (Burgelman, 1983a). Among the alternative methods for business
development, this study focuses on the entrepreneurial behavior of firms, or corporate entrepre-
neurship\(^1\). Corporate entrepreneurship manifests itself through internal development
efforts, often referred to as corporate ventures\(^2\). Such ventures are proposed to be of great
importance for economic development, and of increasing importance for firm survival,
profitability, growth, and renewal (Gut & Ginsberg, 1990; Sathe, 1988; Zahra, 1996a). In
fact, the data collected in this study (see appendix 8), show that the volume of ventures
initiated by established firms is large, by far outnumbering the independent start-ups in
the investigated sectors. Corporate entrepreneurship is, consequently, not only of interest
for understanding the development of firms, but also highly relevant for the development
of an economy. This thesis, however, focuses on the development of firms, and targets
three topics:

1. \textit{why} firms pursue corporate ventures;
2. the effect these reasons has on the \textit{characteristics} of the pursued ventures;
3. and, the effect these characteristics has on venture \textit{outcome}.

These topics are sequentially linked to each other by the venture process (section 2.3.1)
and guide the structure of the thesis, making \textit{exploration} of motives precede \textit{hypotheses} about
outcome in the theory, analysis, and discussion chapters. The three topics are of interest
for practitioners as well as researchers, not least for the following reasons:

\(^1\) Entrepreneurship in established firms is commonly referred to as “new business creation”, “corporate venturing”,
“corporate entrepreneurship”, “corporate innovation”, “strategic entrepreneurship”, or “intrapreneurship”
(Garvin, 2004; Webb & Ireland, 2005). The current study uses the term corporate entrepreneurship, defined in
section 2.1.3, but the introduction and theory chapters give hints about how innovation, entrepreneurs and the
creation of new business relate to this concept.

\(^2\) The terms "venture" and "new venture" will be used as synonyms for “corporate venture” in this thesis, and
should not be confused with start-ups, new firm foundation, or other phenomena outside the scope of investigation.
Introduction

- Understanding why firms pursue ventures illuminates the link between corporate entrepreneurship and strategy: an issue referring to the role played by corporate entrepreneurship in the overall behavior of firms that have attracted interest from scholars during recent years (Covin & Miles, 2007; Hitt & Ireland, 2000; Narayanan, Yang & Zahra, 2006; Venkataraman & Sarasvathy, 2001).

- For academic purposes, knowledge about how venture characteristics influence outcome can: i) advance our general understanding about different determinants of venture outcome, and ii) enable estimation of the influence from some initial venture conditions vis-à-vis the collective effects of other determinants of outcome (cf. Gartner, Starr & Baht, 1998; Kaulio, 2003).

- For practical purposes, knowledge about the impact of venture characteristics on outcome could help managers to better assess and prioritize alternative courses of action.

- Further, to the extent that outcome is difficult to predict, managers may benefit from knowledge about why other firms pursue ventures, as it in any case provides insight about how firms use ventures to deal with different issues in their corporate context (Sorrentino & Williams, 1995).

In addition, the present study distinguishes itself from previous corporate entrepreneurship research in two ways. First, while most corporate entrepreneurship research investigates large corporations (e.g. Block & MacMillan, 1993; Brugelman, 1984a; Sathe, 2003), this project responds to calls for research on corporate entrepreneurship in small and medium-sized enterprises (SME) in general (Carrier, 1996), and on the underlying motivating factors in particular (Borch, Huse & Senneseth, 1999). Second, most quantitative research on corporate entrepreneurship uses the firm as the unit of analysis (e.g. Brown, Davidsson & Wiklund, 2001; Lumpkin & Dess, 1996; Zahra, 1996b). This study, however, responds to calls for research of entrepreneurship at the level where it actually occurs – that of the new ventures themselves (Davidsson & Wiklund, 1991). More concretely, the current study addresses the abovementioned topics by investigating quantitative survey data from 274 ventures (see further details in the method chapter).

The following sections present a background of the study (1.1), discuss previous corporate entrepreneurship research (1.2), present the specific weaknesses in the literature that this study aims to ameliorate, and state the specific research questions (1.3). The chapter then ends with the study’s main contributions and delimitations (1.4), and an overview of the structure of this report (1.5).
1.1 Background

Entrepreneurship has been referred to as an engine for economic growth (e.g. Holcombe, 1998; Schumpeter, 1934)\(^3\). Underlying assumptions for this assertion are: i) that business is about a certain kind of transactions that occur when a seller can provide something that is valued by a buyer, who in turn has something to offer in exchange; ii) that the feasibility of such value-based transactions is fundamental for a healthy economy, as it enables actors to concentrate on a limited range of activities and trade some of the generated value for other values he or she needs; iii) that societal economic growth is, to a large degree, linked to the increase of the amount, value or effectiveness of such business transactions; and iv) that an increase in the amount or value of transactions are symptoms of entrepreneurial activities (whereas effectiveness largely depends on general business conditions\(^4\)).

Today, the majority of this exchange takes place through the offering of goods and services in a market, and is facilitated by currencies that make it possible to generalize value. In practice, however, business is normally more complicated than just handing over the goods and receiving payment. In addition to the possible difficulties of finding the buyer and reaching an agreement in the first place, there are a number of complicating elements that influence the situation. Some of them have to do with the fact that there might be more than one seller interested in profiting from the buyer’s need, which we recognize as competition and rivalry. Moreover, even though theorists sometimes talk about equilibrium, where prices reflect a supply-demand balance under the assumption that all actors possess perfect market information, real market actors normally rarely find themselves in stable and transparent situations\(^5\) (Eliasson, 1996; Kirchhoff, 1994).

Instead, technological, economic, social, political or other aspects of the environment, as well as industry-internal sources of competitive pressure, tend to change over time (Covin & Slevin, 1991; DeWitt & Meyer, 2004; Porter 1985). One may therefore assume that the circumstances under which economic actors operate are more or less continuously changing. This change can be a source of both possibilities and problems:

- Change can cause problems because it is a source of uncertainty for business decisions and task execution (more about that later), but it can also produce junctures of circumstances that are detrimental to an actor’s current business. Strategy literature refers to such junctures as “threats”\(^6\). One of the more well-known

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\(^3\) See Karlsson, Friis & Paulsson (2004) for a recent and thorough review of research on the effects of entrepreneurship on economic growth.

\(^4\) Entrepreneurial activity can also improve market effectiveness sometimes; when the goods or services introduced address transaction needs. Other conditions that facilitate or inhibit transactions include useful currencies, technology level, taxes, trade barriers and so forth.

\(^5\) For instance, Lachmann (1986) suggests that there is no assurance that the forces toward equilibrium are stronger than the de-stabilizing forces. Some authors propose it to be appropriate to work from an assumption of disequilibrium rather than equilibrium (e.g. Nelson & Winter, 1982; Shane & Venkataraman, 2000a).

\(^6\) Compare with SWOT analysis, a technique credited to Albert Humphrey, who led a research project at Stanford University in the 1960s and 1970s using data from the Fortune 500 companies.
models of how change leads to serious threats for established firms is the process of creative destruction. According to Schumpeter (1934), creative destruction causes disruption in an industry when new entrants introduce new and better solutions that have a negative impact on the attractiveness of established solutions, to an extent that established firms might be driven out of business altogether. The failure of established firms when facing innovative new solutions entering their industries has been documented in a number of empirical studies (Christensen, 1993; Cooper & Schendel, 1976; Cooper & Smith, 1997; Tushman & Anderson, 1986; Henderson & Clark, 1990).

Change can also cause favorable junctures of circumstances to present themselves over time, for instance in the form of new business opportunities. Entrepreneurship literature proposes that individuals vary in their propensity to spot and act on opportunities (Kirzner, 1997). This assumption has been extended to firms as well (Brown, 1998; Stevenson & Gumpert, 1985; Stevenson & Jarillo, 1990), and it has been shown that opportunity oriented (i.e. entrepreneurial) firms perform better than other firms (de Koning & Brown, 2001).

Environmental change, including the variation in opportunities and threats over time, and the actions taken in relation to it, are fundamental for the continued existence of an economic actor. A minimum requirement for survival is that the actor and its offering are appropriate in relation to the circumstances in the environment in which it exists. Strategy literature refers to this criterion as environmental fit (Miller, 1982) or consonance (Rumelt, 1980). However, when circumstances change, odds are that a passive actor finds itself in a gradually increasing divergence from requirements of the environment (Thorén & Brown, forthcoming; Zaja, Kraatz & Bresser, 2000). As a result, adaptation tends to become a crucial long-term strategic issue that determines the chances for survival and prosperity.

It is primarily established firms that are challenged with change and adaptation, given that start-ups do not have relationships, structures, resources, expertise, and existing strategies (for the exploitation of other, earlier, opportunities) and are, therefore, unaffected by the mental and organizational inertia that tends to accompany them (Hannan & Freeman, 1984; Normann, 2001). The steps taken by established firms when attempting to change their business, and the link to strategic issues (including external circumstances), are at the heart of the research project presented in this thesis. The following section starts the presentation of the project through a review of relatable corporate entrepreneurship and strategy literature.

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7 Merriam-Webster Online Dictionary (2004) defines opportunity in general terms as a “favorable juncture of circumstances”.

1.2 Previous Research

The field of corporate entrepreneurship has received considerable attention from researchers, particularly the past three decades. Departing from the early work of Biggadike (1979), Roberts (1980), and others, there is now an abundance of literature about corporate entrepreneurship. However, this literature covers the topics pursued in this thesis rather unequally. Much of the literature relevant for this study can be divided into four groups: i) firm-level corporate entrepreneurship research; ii) venture-level research on corporate entrepreneurship activities; iii) corporate entrepreneurship and strategy research; and, iv) corporate entrepreneurship in SME:s. The following sections summarize the contributions of each research stream regarding the topics of interest in this study. In the summary, section 1.2.5, it will hopefully be clear how the current study targets specific areas that are important, but under-researched.

1.2.1 About Entrepreneurial Firms

Focusing on the firm as the unit of analysis, the underlying idea of this research stream is that firms can be entrepreneurial to varying extents, and that this is an important aspect of the firms’ behavior. A large portion of the research stream relies on quantitative methods to gauge the level of entrepreneurial behavior in firms. The established measures for corporate entrepreneurship include entrepreneurial orientation (Covin & Slevin, 1986) and entrepreneurial management (Brown, 1998). The first measure, entrepreneurial orientation, aims at capturing the extent of three attributes commonly associated with entrepreneurship. One of these is risk. Risk-bearing and uncertainty have been considered a core aspect of entrepreneurial activity since the beginning of modern literature on the subject (Knight, 1921; Miller & Friesen, 1982). Another central attribute is proactiveness, a characteristic of entrepreneurship discussed by researchers such as Miller & Friesen (1982) and Mintzberg (1973), who associate entrepreneurship with action-orientation and forward thinking. The third attribute is the realization of innovations, which links entrepreneurial orientation back to the theories of Schumpeter (1934). These three attributes - innovation, risk, and proactiveness - were combined by Miller (1983) into the firm-level conceptualization of entrepreneurial orientation. Miller’s conceptual contributions were later operationalized by Covin & Slevin (1986), who developed scales that have been widely used in empirical studies, and are considered useful for capturing important aspects of entrepreneurship (Wiklund, 1998). Recently, empirical research using the entrepreneurial orientation measure has found promising possibilities for further development and refinement of the instrument (Zortea, 2005).

The main competing instrument for gauging firm-level entrepreneurial behavior is the entrepreneurial management construct. This construct builds on the predictions of Kirzner (1973), who describes entrepreneurship as when market actors capitalize on perceived opportunities that are unnoticed by other actors. The key element in entrepreneurship according to this opportunity-centered view is, hence, alertness to market circum-

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8 Other ways of measuring exist as well, but have not yet become as wide-spread in entrepreneurship research (e.g. Block & MacMillan, 1993; Hornsby, Kuratko & Zahra, 2002; Zahra, 1996a)
stances (Kirzner, 1973). Stevenson’s (Stevenson & Gumpert, 1985; Stevenson & Jarillo, 1990) conceptualization of entrepreneurial management is coherent with both classical and contemporary definitions, and has received widespread recognition and support in the literature (Brown et al., 2001). In this conceptualization, entrepreneurial management is characterized by six dimensions (i.e. strategic orientation, resource orientation, management structure, growth orientation, entrepreneurial culture, and reward philosophy) that were later operationalized by Brown (1996). Brown et al. (2001) made an empirical test of both the EM and the EO instrument, and found that they measure different, but partly overlapping, aspects of corporate entrepreneurship.

By applying multivariate techniques, several studies investigate how the entrepreneurship constructs relates to performance (Wiklund, 1998; Zahra, 1995), resource self-efficacy and growth (Brown & Kirchhoff, 1997), and to the influence of the environment or other mediating or moderating variables (Kreiser, Marino & Weaver, 2002; Zahra, 1996b; Zahra & Garvis, 2000). For instance, there are several environmental conditions that tend to stimulate corporate entrepreneurship, such as dynamism and heterogeneity (i.e. change and variance) in the environment (Zahra, 1991), as well as technological intensity and industry life cycle stage (Covin & Slevin, 1991). Findings imply that the lack of stability in product solutions and business models (e.g. in early industry life cycle stages) makes firms score higher on corporate entrepreneurship indicators. Further, environmental hostility appear to influence the relationship between entrepreneurship and financial performance positively (Covin & Slevin, 1989; Zahra & Covin, 1995), and also stimulates innovation (Miller & Friesen, 1983).

In summary, this research stream confirms that it is relevant to investigate corporate entrepreneurship in relation to environmental circumstances. In addition, the aforementioned measurement instruments propose opportunity orientation as one link between firms and the environment that can be a possible explanation as to why firms engage in corporate entrepreneurship. Other attributes that hint about such explanations are growth ambitions and proactiveness. However, there are two limitations that cause a need for further research related to the topics of this study:

- The studies measure symptoms of, and attitudes to, entrepreneurship rather than actual entrepreneurial actions.
- Both instruments (EO and EM) are based on earlier conceptual literature and, hence, assume reasons for corporate entrepreneurship rather than establishing them empirically.

Overall, this research stream suggests that reasons for, and outcome of, corporate entrepreneurship are linked to the firm’s strategic circumstances. It further provides hints about reasons and outcomes of entrepreneurial activities at an aggregated level, but seems to largely ignore the possibility that firms might be entrepreneurial in ways, or for reasons, other than those presumed.
1.2.2 About Corporate Entrepreneurship Activities

A number of studies investigate the specifics of the venture process and the firm-internal context in which it takes place. In contrast to the research stream presented above these studies are usually case based and rely on qualitative methods. Several studies investigate corporate entrepreneurship in large well-know firms, such as Eastman Kodak (Kanter, Richardson, North & Morgan, 1991); Ohio Bell (Kanter & Richardson, 1991); IBM (Madique, 1980); Acordia (Kuratko, Ireland, Duane & Hornsby, 2001); Texas Instruments (Fast, 1979); Toshiba (Albetti, 1997); 3M (Roberts, 1980; Sathe, 2003); and, Sun Microsystems (Garud, Jain & Kumaraswamy, 2002). The focus tends to be on entrepreneurial actions, usually through venture-level research, or a combination of venture- and firm-level. Typically, researchers follow a number of ventures in one or more companies, in longitudinal studies, and present detailed accounts of the venture process and issues that are related to it (e.g. Hitt, Nixon, Hoskisson & Kochhar, 1999; Sathe, 2003; Serpa, 1987).

The research stream provides rich examples and in-depth knowledge about how entrepreneurial activities of individuals combine to produce entrepreneurship on the corporate level, how the corporate venturing process works, and the consequences of structural and managerial practices in terms of facilitation or obstruction of that process. Often, these case based studies include normative propositions regarding how managers could make their firms more entrepreneurial, and how the likeliness of venture success can be improved (e.g. Burgelman, 1984b; Kanter, 1985, 1982; Sathe, 2003, 1988).

Common themes in the findings concern the necessity of top management support and the friction between the ventures and the firm’s current business. Current business tends to dominate the internal context in which the venture is situated, making the context oriented towards efficiency and predictability. However, entrepreneurial management (generally speaking) is often proposed to be in conflict with conventional management (Kanter, 1985; Sathe, 1989; Sykes & Block, 1989). The reasons for such conflict includes that conventional management promotes predictive performance and narrow focus of participants’ actions through specialization, while entrepreneurship is associated with the embrace of opportunity, acceptance of uncertainty, and broad attention to unexpected possibilities (Jelinek & Litterer, 1995).

Field studies have nevertheless found that some firms achieve a balance where internal entrepreneurial behavior can exist, while conventional management concerns such as control, are maintained (Sathe, 1985). Culture, structures, and administrative systems that facilitate this balance are those that stimulate information sharing, communication, and tolerance for failure (Brown, 1998; Kanter, 1982). Moreover, reward systems oriented toward value creation rather than responsibility and tenure, as well as organizational solutions that support cross-functional communication, rapid information processing, availability of resource slack, and organizational flexibility are proposed to be useful means for achieving an internal climate that is beneficial for entrepreneurship (Burns & Stalker, 1961; Galbraith, 1982; Kanter, 1982; Lawrence & Lorsch, 1967; Sathe, 1988).
However, achieving an appropriate internal environment may be a profound challenge for some firms. In order to change organizational participants’ behavior in any significant degree, the efforts to stimulate entrepreneurship must exceed managerial objectives and policies and produce a change in shared values and culture, and these tend to be more resistant to change than other elements in the organization (Sathe, 1988).

Overall, it appears that aspects concerning organization and management in relation to corporate entrepreneurship have been subject to substantial research. In addition, the venture process and its qualities are central elements in this research. As this process includes the selection of ventures, a central issue in the current study, it will receive some additional explanation below.

**The Venture Process**

Burgelman’s work (1983b, 1984b) provides a fairly comprehensive picture of the nature of the venture process in large firms. His model emphasizes the actors, issues, and actions at different hierarchical levels in the early stages of corporate ventures. A central proposition is that venture initiatives start on lower levels in the organization, as a result of the autonomous (strategic) behavior of individuals. Some authors claim that low level employees (Burgelman, 1983b) and middle managers (Kanter, 1995) are especially well suited to notice possible opportunities, because of their closeness to operations and customers. If there is enough slack, or fungible resources, and impetus provided by venture “champions”, the autonomous behavior may accumulate form and momentum enough for the starting of early stage experimentation and venture formation activities. Some initiatives then progress upward through the hierarchy, as the activities require more resources and consequently need approval from higher level managers. The development of a few initiatives continues until they are mature for acquiring top management authority. “Maturing” here signifies the gradual articulation and definition of the venture’s technical and economical aspects, as well as the development of a “master strategy” for the new area of business (Burgelman, 1983b: 235). The master strategy, therefore, plays the important role of relating venture definition to top management issues and explaining why it is needed. It therefore appears crucial for persuading top managers to select the venture initiative for full-scale pursuit.

Burgelman largely excludes the possibility that large firm top managers would start entrepreneurial initiatives, arguing that they are too strongly committed to the current strategy and too engaged in enforcing the formal structural context that supports it. Their role in

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9 A comprehensive review of requirements and mechanisms for managing entrepreneurial firms is provided by Jelinek & Litterer (1995). Based on cognition theory they propose, among other things, that thriving entrepreneurship requires the organization to support ambiguity absorption through information sharing, alertness to anomalies, and shared management.

10 Substantial research efforts have been devoted to understanding the apparently critical role of champions – i.e. the individuals at different organizational levels that engage strongly in a venture initiative and provide impetus for its progression (e.g. Day, 1994; Kanter, 1982; Maidique, 1980). Champions at operational and middle levels appear to play an important role in the identification of opportunity. Middle and higher level managers act as catalyst for the initiative by bringing the initiatives to top managers’ attention, presented in a form that makes them more comprehensible in their decision context (Burgelman, 1983a; see also Kanter, 1982).
corporate entrepreneurship, therefore, primarily concerns manipulation of the structural context in order to influence the level of entrepreneurial activities (possible measures are exemplified by the aforementioned normative implications of this research stream) and to make decisions about which initiatives to pursue among those presented to them (Burgelman, 1984b). Noda & Bower (1996) finds additional empirical support for such bottom-up patterns in the corporate venture process. However, more recent research finds that the entrepreneurial process may occur in alternative directions. In an investigation of 136 internal corporate ventures, Day (1994) finds evidence of top-down as well as bottom-up championing, the former being more common for ventures that include new strategic directions. This tells us two things about the link between corporate entrepreneurship and strategy: i) that the link has venture-level effects, as not only the entrepreneurial orientation of the firm relates to strategic issues, but also the evaluation of each venture initiative; and ii) that top managers appear to be strongly involved in all venture pursuit decisions, and may even induce initiatives when there is a change in strategy. To elucidate the link further, the next section reviews literature that connects entrepreneurship to strategy.

1.2.3 About Corporate Entrepreneurship and Strategy

This stream of research struggles with linking corporate entrepreneurship to theory about strategy. Most attempts appear to emphasize similarities and differences between the two (e.g., Ireland, Hitt, Camp & Sexton, 2001; Hitt, Ireland, Champ & Sexton, 2001). A representative example is Hitt & Ireland (2000) who identify a number of intersections between the fields. The ones most relevant for this study are:

- Innovation: referring to Afuah (1998), the authors define innovation as the sum of an invention plus the commercialization of that invention. In the strategic management field, successful innovations are one of the central means for competitive advantage, as they are superior to previous solutions in fulfilling a market need and, at the same time, difficult for competitors to understand and duplicate. Innovation is also intimately linked to entrepreneurship (Drucker, 1985; Schumpeter, 1934), partly because it enables firms to grasp opportunities (Venkatraman, 1997).

- Internationalization: a strategic step that is entrepreneurial in the sense of pursuing an opportunity and creating new business by entering a new market.

- Organizational learning: a strategically important requirement for, and result of, continued innovation that can provide sustained competitive advantage (Narayanan et al., 2006). Interestingly, it appears that obtaining useful learning effects do not depend on venture success – learning can occur through the engagement in entrepreneurial activities, regardless of their outcome (Sathe, 2003).

- Yet another important overlap concerns the effects of entrepreneurship because these concern areas of strategic importance, such as growth, flexibility, and change. These effects are strategic priorities, since they determine the firm’s chance of survival and success in the increasingly turbulent and competitive landscape (Bettis & Hitt, 1995).
These intersections demonstrate that corporate entrepreneurship has strategic value. They also exhibit certain points of overlap with strategy, implying that the two phenomena are related. However, the authors fail to clarify the nature of this relationship, largely because they take a narrow view on strategy that is limited to the issue of competitive advantage, one of several aspects within business strategy. In contrast, a recent review of corporate entrepreneurship literature, recognize that corporate entrepreneurship is also an element of corporate strategy (and not only of business strategy), but argue that there are distinctive features that differentiate it from other elements of corporate strategy (Narayanan et al., 2006). An association with corporate strategy is reasonable since corporate entrepreneurship can result in a change of the corporate business portfolio (i.e. a successful venture adds a new area of business that complements or replaces current ones.) In that sense, corporate entrepreneurship reveals the corporate strategy over time, through patterns in the stream of pursued ventures. In other words, ventures provide a window into how managers sequence the implementation of strategies (Narayanan et al., 2006). This view suggests that it is more appropriate to link the two phenomena by examining the role played by corporate ventures and the reasons they are undertaken, than by pursuing the question of whether entrepreneurship is strategy or not (cf. Hitt & Ireland, 2000).

The Strategic Role of Corporate Entrepreneurship

Burgelman (1983a) states that corporate entrepreneurship is not an end in itself, nor is it a regular concern; it is done when there is a reason. This assertion is supported by his observation that firms’ emphasis on business development varies over time in a manner that seems related to the success in current business (Burgelman, 1984b). When prospects were poor, managers were far more willing to diversify and less discriminant about the quality of the available venture initiatives. Such behavior confirms that ventures are undertaken for the sake of achieving something, in this case an avoidance of something negative like increasing competitive pressure. At this point it becomes useful to recognize the distinction between the strategy, e.g. to go into a new area of business or to create strategic renewal in the current area of business (Guth & Ginsberg, 1990), and the way it is pursued. Corporate entrepreneurship represents one of several alternative ways of realizing a strategy. Covin & Miles (2007) propose four different models of the strategy-entrepreneurship relationship. First, using corporate entrepreneurship as means for creating the desired results of a strategy implies that corporate entrepreneurship represents strategy implementation rather than strategy content. Or, in other words, that strategy drives corporate entrepreneurship (Guth & Ginsberg, 1990).

- Second, according to Burgelman (1983a), selection occurs as the initiative, refined and defined by middle managers, is assessed by top managers in light of how they perceive the strategic situation. A strategy may exist as an input to the strategic as-

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11 Another useful review on corporate venturing was compiled by Backholm (1999).

12 Alternatively, corporate entrepreneurship may be loosely linked to strategy, or unrelated to strategy, as would be the case if intrapreneurial efforts occur but are not exploited the firm in any strategic way (Carrier, 1996; Covin & Miles, 2007).
Introduction

...essment, but at other times a more short-term development strategy occurs in the moment, and relates the venture to the vision of how the business should be developed. In the latter case, a strategy surfaces over time, in line with a model of emergence rather than planning as proposed by Mintzberg (1994). If this happens, the internal autonomous strategic behavior and other preceding efforts within the venture are, as Burgelman (1983b) puts it, retroactively rationalized to fit the new strategy. In essence, such behavior would imply that the organization is opportunity-driven, and that corporate entrepreneurship shapes strategy (Covin & Miles, 2007).

- Third, one could imagine a situation where entrepreneurship is initiated relatively autonomously in the organizations, but where managers try to influence autonomous activities and/or the domain of opportunity search towards desired directions (Burgelman, 1983a,b; Simons, 1995). In this model, the relationship is somewhat reciprocal, as emerging initiatives are allowed to shape strategy, but there is an overarching strategic vision that is promoted through adaptations of the internal context for the purpose of influencing the emergence of initiatives (Covin & Miles, 2007; Simons, 1995).

- Forth, Covin & Miles (2007) propose that in some cases, corporate entrepreneurship is the business strategy. With maintained focus and direction it may enable a firm to lead the development of its industry and use continuous innovation as a competitive advantage (Miller & Friesen, 1982). A difference from the previous model would be that only the initiatives that respond to innovation demands of the firm’s environment get selected for pursuit, implying a stronger presence of more direct top management control (Covin & Miles, 2007).

Covin & Miles (2007), however, discuss firm-level entrepreneurship over time. While they present a useful review of the directionality issues, they do not say much about corporate entrepreneurship motives. Further, at the venture level, it is possible to imagine that the directionality may vary within the same firm depending on circumstances at each instance.

The venture level is important for understanding the link between corporate entrepreneurship and strategy in terms of how entrepreneurial efforts constitute a means for realizing strategic moves. Each venture consumes resources for uncertain outcomes, and should therefore be associated with a set of reasons that motivate this allocation of resources. Regardless of whether the venture is strategy-driven or strategy-defining, it is these reasons that contain the resource-allocating managers’ rationalization of how the venture is motivated from a strategic point of view. Stated differently:

*The central assumption of this thesis, which will be examined conceptually and empirically in the following chapters, is that there is a connection between strategy and corporate entrepreneurship that occurs when a specific venture, with suitable characteristics in regards to the motives for venturing, is selected for pursuit.*

The next section will explain how corporate entrepreneurship may be different in SME:s compared to larger firms, and why SME:s may be more suitable as subjects for this study.
1.2.4 About Corporate Entrepreneurship in SME:s

The process of corporate venturing described by Kanter (1982) and Burgelman (1983), including the proposed lack of early top management involvement and insight, depends on organizational layering and bottom-up transition of initiatives as the key explanatory concepts. SME:s tend to have fewer and less pronounced organizational levels and greater possibilities for direct interaction between individuals. For these reasons, the bottom-up processes described by Burgelman may be less common in smaller firms (Day, 1994).

Research on corporate entrepreneurship in SME:s is, however, comparably uncommon (Carrier, 1996). The few studies that have been undertaken nevertheless provide some knowledge that may serve as a starting point for this, and future, research projects. For instance, some of the models and methods in the firm-level research stream (section 1.2.1) have been applied on samples of smaller firms. These studies confirm that corporate entrepreneurship is a valid and meaningful distinguishing characteristic for small firms as well as large. Moreover, as in the general case, it appears that the benefits SME:s can obtain from corporate entrepreneurship relate to the strategic circumstances under which the firm operates (Wiklund & Shepard, 2005).

On the other hand, Dean, Brown & Bamford (1998) compare how small and large firms deal with their environment, and found that large firms can utilize greater resources and economics of scale for adaptation to changing circumstances, while smaller firms have advantages in terms of speed, flexibility and niche-filling capabilities. These differences may have impact on how, why, and when SME:s use corporate ventures.

It is therefore not surprising that researchers, such as Wortman (1987), Carrier (1996), Faber (1999), and DeMartino & Neck (2005), found that the venture process in SME:s has some similarities to the process described by Burgelman (1983a, 1983b), but also a number of important differences. Contextual differences that concern the venture process include that, unlike large diversified firms, smaller firms tends to:

- Have less resources and a relatively narrow business scope;
- Have top managers with insight into the daily operational activities because of the smaller organizational distances in general, and through their direct involvement at the operative level;
- Have less slack, or unused resources, at operational level because the relatively good top management operational insight leads to tighter control;
- Have the majority of the efforts with boundary spanning activities, customer contacts, and other interactions with the external environment carried out by top managers;
- Be less able to isolate corporate ventures from current business activities. Instead, ventures often disturb mainstream activities in the internal environment.

As a result, the sequencing and location of venture activities probably differ from Burgelman’s model. A lack of slack and the presence of managerial insight and resource control at operational level make autonomous entrepreneurial initiatives more unlikely in
SME:s, and it is even more difficult for initiatives to take place without top management’s knowledge (Faber, 1999). Simultaneously, this relates to several reasons why SME:s may be a more suitable empirical setting for investigations of the topics targeted by this study: For instance:

- Faber’s (1999) study suggests that, in SME:s, corporate ventures are perceived as means for strategic moves, possibly making the link between corporate entrepreneurship and strategy relatively tight and evident. Under these conditions, why-issues may be more observable and more accessible for research.

- Day’s (1994) findings imply, and Faber’s (1999) and Carrier’s (1997) studies confirm, that strategically important ventures in SME:s are associated with large top management involvement and participation. SME top managers may therefore be excellent sources for information about venture efforts and their motives. That is an advantage, as it should make it relatively easy to identify respondents with in-depth knowledge about both the venture efforts and the strategic reasons that figured in the selection processes.

- Another important point is that SME:s are much more common than large firms and are, therefore, more representative of business organizations in general.

To summarize, despite that corporate entrepreneurship in SME:s is generally under-researched (Carter, Stearns, Reynolds & Miller, 1994; Carrier, 1996; Dean et al., 1998; Faber, 1999), the small amount of research that has been conducted demonstrates that previous findings from studies of large diversified firms are not completely applicable. Instead, it appears that SME:s may change their business through partly different processes and for other reasons compared to their larger counterparts. They also appear to be more appropriate subjects for the study of venture motives and their link to strategy.

1.2.5 Summary

The reviewed literature suggests that corporate entrepreneurship, over time, reflects the strategic vision of the firm. Of particular importance for the link between entrepreneurship and a firm’s strategic maneuvering is top managers’ involvement in these activities. While some studies support the Burgelman hypothesis of a bottom-up process (e.g. Noda & Bower, 1996), others find both bottom-up and top-down elements in the progress patterns of venture initiative (Simon, 1996; Stopford & Baden-Fuller, 1994; Clifford & Cavanagh, 1988).

In terms of how corporate entrepreneurship is used, the top-down induction of venturing activities corresponds to a use of venturing for the pursuit of intended strategies, implying that corporate entrepreneurship follows strategy (Covin & Miles, 2007). However, the link may also be indirect, as corporate entrepreneurship is also susceptible to “intervening or mediating variables, such as organization structure, management style, or the firm’s reward system” (Covin & Miles, 2007: 187), as well as the possible moderating effect of the organization’s culture. The deliberate use of such mechanisms, for the sake of influencing the emergence of initiatives, appears very similar to Burgelman’s (1983a,b) observation of top managers having a semi hands-off approach to corporate ventures. Clear
empirical evidence regarding the initiatives’ direction through the hierarchy, in the progress towards full-scale pursuit, and how that relates to the strategic use of ventures is nevertheless still lacking.

More importantly, whenever venture realization involves a change of strategy and/or the business areas where the firm is active, it is unlikely that an initiative will progress to a full scale venture without top managers’ consent, regardless of the directionality issues mentioned above (Day, 1994). Consistently, the reviewed literature contained no indications that top managers were uninvolved in venture pursuit decisions. Venture attempts can therefore be seen as a result of a selection process (Burgelman, 1984a), where selection represent top managers’ strategic choices (Carrier, 1999; Faber, 1999), based on their recognition of the initiative’s strategic benefits, their assessment of the firm’s situation with regard to external circumstances, and the firm’s long-term development strategy (if one exists).

Further, ventures involve complex efforts that require the commitment of time and resources for uncertain outcomes. So when selecting a venture, top managers choose to engage in a potentially costly option for strategy realization that is difficult to manage and likely to fail (Block & MacMillan, 1993; Garvin, 2004; Garud & Van de Ven, 1992). It is therefore reasonable to assume that venture selection normally requires that the top management team perceives or enacts motives that counterweight the gloomy prospects and costs, thereby providing enough motivation for pursuing the venture.

Firm-level research proposes opportunity orientation, proactiveness, and growth ambitions as strategic characteristics typical for entrepreneurial firms. These characteristics can therefore potentially relate to venture selection motives. However, the study of the strategic motives of actual venture attempts appears limited to: i) establishing that ventures are purposeful and intentional activities (Bird, 1988); ii) that it is in the selection process that one can seek to recognize the link to strategy (Burgelman, 1983b); iii) that ventures may respond to opportunities as well as threats (Block & MacMillan, 1993); and, iv) that they in small firms normally involve rather extensive and early top management involvement (Faber, 1999).

Moreover, section 1.2.3 demonstrates that ventures may be undertaken for other reasons, and through other processes, in SME:s compared to large firms, and that larger firms are questionable as empirical subjects for this study. This study therefore targets the determinants, and consequences, of venture selection in SME:s.

1.3 Overall Purpose of this Research Project

Corporate entrepreneurship concerns activities that involve change of the firm’s business areas as indicated above. The outcome of a change process depends on the firm’s motivation, opportunity and capability to change (Miller & Chen, 1994). Previous research primarily targets the capability issue (eg. dynamic capability and so forth) but gives few useful hints about motivation, in particular at the venture level.

The available literature confirms that ventures tend to be motivated by some strategic urgency and often only after the preempting of other alternative courses of action.
(Stopford & Baden-Fuller, 1994; Treacy, 2004). But, with few exceptions, strategic urgencies have so far only been broadly labeled as threats or opportunities. This labeling is not only rather rudimentary; it is also problematic for clarity reasons that will be explained in the next chapter. The uncovering of more precise motive patterns would therefore substantially advance the body of knowledge about how and why firms select ventures and the strategic role of corporate entrepreneurship.

Consequently, to get a genuine understanding of entrepreneurship in its strategic context, one needs to expand the research scope outside the entrepreneurial activities and encompass the issues influencing venture selections. The purpose of this study is therefore to uncover the existence and effects of motives for corporate ventures in an empirical setting where they can be assumed to provide useful and accessible information about the link to strategy, i.e. in SME:s. This purpose is expressed in a more precise form by four research questions (RQ) below.

### 1.3.1 Research Questions

The role of ventures as a means for realizing business development strategy should be explored before moving on to the effect issues. The discussion above demonstrates that this may be possible though the examination of venture selection motives. The issue of existence of motives is therefore addressed in the first research question. Its objective is to identify which strategic issues top managers take into account when deciding on venture selection (Sorrentino & Williams, 1995). However, the possibility that the means-ends links does not exist is also important to consider. The research should therefore include verification of the assumption that motives are important determinants of venture selection. The first RQ is hence:

**RQ1:** What are the motives, if any, behind corporate ventures pursued by SME:s?

To generate useful implications about business development decisions, research should also take into account the effects of choices made. Here, the uncovering of effects can be separated into three RQs.

First, the existence of motives is still a relatively uninteresting finding unless their relation to different courses of action is revealed. A selection process assumes that there are choices, and choice implies that there are alternatives with some meaningful differences. The second research question, therefore, aims at identifying possible relationships between motive differences and venture differences. To do that, ventures must be described and categorized in a comprehensible way so that differences can be distinguished, and corresponding motive patterns can be identified. Assuming that ventures can be described by variables that represent its relevant characteristics (more about this later), one can pursue the second research question:

**RQ2:** How are motives linked to the characteristics of pursued ventures?

Second, a benefit of research at the venture level is that it allows for investigation of the outcome of entrepreneurial efforts. This is interesting because it can be assumed that all

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13 The possibility that strategic choice may be limited exists but is not relevant for this study because the idea about a means-ends relationship between a selected venture and strategy should still apply (Child, 1972).
corporate venture attempts do not have equal chances of success (Kanter & Richardsson, 1991; MacMillan, Block & Narasimha, 1986; Roberts & Berry, 1985). Knowledge about how venture characteristics influence outcome could therefore help managers to better assess and prioritize alternative courses of action, but it would also enable scholars to learn more about the venture process in general, and about its influencing factors in particular.

Previous research has primarily focused on the relatedness between the venture and the firm’s current business as a key determinant of outcome (e.g. Thornhill & Amit, 2000). However, so far, this research has provided conflicting findings and suffers from limitations such as small sample size (Roberts & Berry, 1985), or focus limited to certain types of ventures (Sorrentino & Williams, 1995). In addition, there are also other characteristics than relatedness that may influence outcome. Prediction of outcome investigations should therefore control for the influence of these characteristics in order to obtain credible findings (this will discussed more in the next chapter).

This research examines outcome in two steps, through the pursuit of the two last RQs, which are formulated below. Roberts & Berry’s hypotheses suggest that the extent and direction of business development determines the amount of uncertainty that must be dealt with during venture execution, which in turn is assumed to influence the likeliness of a positive outcome. The first step will hence be to establish the levels of uncertainty, and to verify the extent to which they are related to venture characteristics. The third RQ is therefore:

RQ3: What is the impact of venture characteristics on venture uncertainty?

Next, once uncertainty has been measured, it is possibly to estimate its effect on venture outcome. A venture-level examination of outcome may be one way of getting closer to understanding success factors in corporate venturing, which, despite its importance (Guth & Ginsberg, 1990) is far from thoroughly investigated (Hornsby et al., 2002). Studies at this level, where the entrepreneurial activities actually occur, are especially promising in this respect, as they are well positioned for finding factors that may be obscured at more aggregated levels. However, in order to study of the effects of venture selection more broadly, the study shall also examine the possible direct effect of some of the venture characteristics (see section 2.3). The fourth RQ is hence:

RQ4: What is the impact of venture characteristics and uncertainty on venture outcome?

Together, the four research questions connect ventures to their antecedents in the form of motives, and to the selection consequences in terms venture characteristics as well as outcome. The research questions are thereby linked to each other in a chain of effects, starting with venture motives.
1.4 Contributions and Delimitations

This study builds on and extends previous research in the entrepreneurship field. It targets entrepreneurial behavior in established firms, or corporate entrepreneurship, with a concentration on SMEs.

1.4.1 Main Contributions

Specifically, this research focuses on the motives that make top managers engage their firms in ventures, and the conditions that make the success of such ventures uncertain. It aims at improving our understanding of four issues. First, it explores the often forgotten issue of why firms act entrepreneurially. Second, it examines whether and, if so, how these motives influence the choice of ventures that firms try to pursue. Third, it estimates the impact of venture characteristics on the occurrence of typical venture difficulties during the exploitation efforts (i.e. uncertainties). And, fourth, it investigates these issues’ impact on venture outcome.

The found differences in motives for different types of ventures refine our knowledge of why firms attempt certain strategic actions. Moreover, even though the distance between the new and current businesses is found to be related to the amount of perceived venture uncertainty, the study corroborates Sorrentino & Williams’ (1995) finding that the negative effect of distance on venture outcome is relatively small and concern market aspects only.

Because of the difficulty of predicting outcome, Sorrentino & Williams (1995) suggest that it may be more appropriate for practitioners to primarily base venture selection on the strategic analysis, than on relatedness considerations. The current study provides new empirically based knowledge about this important issue, as it extends over motives that reflect practitioners’ perceptions of the corporate context and demonstrates how it leads to differences in venture choices.

Delimitations

Each research project is by necessity faced with trade-off decisions due to purpose, resource, and feasibility constraints. While the research question explains the direction of the research, the trade-offs force researchers to make a number of additional choices on what to include and exclude in each study. This study also has a number of such delimitations, of which the main ones are explained below.

- This research does not include pre-selection stages of the venture process, like questions regarding where the initiatives come from. I hence do not, for instance, have the ambition to verify the Burgelman bottom-up hypothesis: That initiatives initiate at lower organizational levels and surface through the hierarchy, towards top managers’ review and selection. (see Faber, 1999, for a examination of this issue).

- Moreover, there are several ways for established firms to enter new businesses. Examples include internal development and internal ventures, acquisitions, joint ventures, licensing, alliances, and minority investments (Roberts & Berry, 1985).
This study strives to link entrepreneurship to strategy and concentrates on entrepreneurship as the means for strategy implementation. It therefore concerns entrepreneurship through internal developments and internal ventures only. See section 2.1 for a more exhaustive discussion.

- Davidsson & Wiklund (2001) argue for the use of longitudinal research in new venture-level studies. This has been done in several of the qualitative studies reviewed above. This study, similar to most quantitative research on product development projects (which can be seen as a subset of corporate ventures), uses retrospective methods for reasons of feasibility (Chen, Reilly & Lynn, 2005). In addition, investigating motives means questioning why something happened. This question can only be answered at the point of the decision or after – not before – because the decision occurs as the specific action is linked to its justification. The statement “we intend to make the decision to do x” would therefore not make much sense, since it demonstrates that, for all practical purposes, the decision has already been made.

- Because the direction of the internal venturing process may be bottom up, the existence of strategy-related motive does not prove that firms have long-term development strategies. They may try to influence their development process as proposed by Normann (1977) on the basis of business or learning considerations, but the study can not confirm that the top managers do more than consider each initiative individually. In fact, Burgelman (1984b) suggests that top managers tend to lack a development strategy (but that they should have one) and that they instead treat emerging initiatives as possibilities for insurance against undesirable development in current business, resulting in under-commitment to ventures during good times and inadequate review of venture proposals during more difficult times. While this is an interesting point related to venture selection, it was outside the scope of this study.

- It can be expected that intuition and personality affect the strategic choice of venture selection (Bird, 1988; Stopford & Baden-Fuller, 1994). The actual decision process, in terms of analysis and enactment of a rational, is nevertheless not a subject in this study. Instead if focuses on the in-puts and out-puts of selection while leaving the actual decision mechanism as a black box (see section 2.2.1). For entrepreneurial decision-making, refer to other literature such as Gunter McGrath’s (1999) real options theory, or Sarasvathy’s (2001) theory about effectuation.
1.5 Structure of the Thesis

The remainder of the thesis is organized into five main chapters, each of them including a number of sections:

- The following chapter contains the theory underpinning this research, and starts with a clarification of business development and corporate entrepreneurship that is based on business-model theory (Morris, Schindehutte, Richardson & Allen, 2006). This is followed by the development of constructs, organized into one section for the exploratory part of the research (RQ1 & RQ2), and one section for the hypothesis-testing part of the research (RQ3 & RQ4).

- Method considerations are presented in chapter 3, which accounts for sample issues, data collection methods, and the analytical tools used for answering each of the RQs. The constructs developed in chapter 2 are operationalized in the beginning of chapter 3.

- Chapter 4 presents the analysis and its results. First, two sections of exploratory analysis examine venture motives (through factor analysis) and the correspondence of venture characteristics with the identified motive dimensions (cluster analysis, factor analysis, and analysis of means). Second, two sections are dedicated to testing of hypothesis. The first of these sections tests the hypothesized links between venture characteristics and the resulting uncertainty (through regression), as stated in RQ3. The other section addresses RQ4, and investigates the impact of venture characteristics and uncertainty on outcome (structural equation modeling).

- The final chapter discusses the findings and conclusions, and present both implications and limitations of the research.

The main chapters of the thesis are followed by references and appendixes.
Introduction
2 THEORETICAL FRAMEWORK

Before discussing the conceptual building blocks that are to be used when answering the research question, some clarifications of the central concepts are needed. The first section (2.1) illustrates the role of corporate entrepreneurship by placing it in a relationship with corporate strategy and business development, in a discussion held together by the business model as the integrating conceptual framework.

The second section (2.2) provides the theory needed for investigating the first two research questions, RQ1 and RQ2. Since this part of the study is exploratory, the purpose of the theory is not to form hypotheses, but to prepare for operationalizations by identifying possible important areas of inquiry, based on useful parts of the literature.

The third section (2.3) provides the theoretical groundwork for answering RQ3 and RQ4, including the definition of constructs and hypotheses about their relationship. The last section (2.4) summarizes the chapter.

2.1 Business Development and Corporate Entrepreneurship

The purpose of this section is to outline how business development constitutes strategic options from a managerial point of view. In the previous chapter I mentioned that business transactions occur through the transfer of something of value from a seller to buyer, and a flow of currency (and often valuable information as well) in the opposite direction. The creation of things of value, henceforth referred to as products, at a larger scale usually take place through the use of organized resources and activities within firms14 (Normann, 1977). A useful way to conceptualize the relationships between organizations, products and markets is the business model (Morris et al., 2006). Business models are the theoretical base for the entire chapter. It is therefore appropriate to start by explaining this concept, and then move on to how it relates to corporate strategy, business development, and corporate entrepreneurship.

14 New technology has increased the possibilities to create value across formal organizational borders (Normann, 2001), but this is of less importance in the simplified model presented here.
2.1.1 The Business Model as a Conceptual Starting Point

Business models rest on a perspective on the organization as a set of elements in system-like relationships (Thompson, 1967; Viscio & Pastermack, 1996), and that it is the quality and appropriateness of the individual elements and their configuration that is the fundamental source of competitive strength (Porter, 1995; Powell, 1992). The business model, used as a tool for description, demonstrates a firm’s principle of consonance and can therefore be used as a conceptual framework for describing generic strategy in the sense proposed by Rumelt (1980). Generic strategy refers to the role played by the firm in its environment and how well it fits the requirements of that environment, or in simple terms, how the firm makes money (Carlsson & Dahlman, 2000; Normann, 1977; Rumelt, 1980). A number of similar models have been proposed, with other names such as; business system (de Witt & Meyer, 2004), business concept, revenue model (Morris et al., 2006), or business idea (Carlsson & Dahlman, 2000; Galbraith, 1982; Normann, 1977).

I use business models as an overarching framework because it links the strategic activities in the world of business with the operational activities in the world of management in a way that will be very useful when discussing entrepreneurship and business development later (see figure 1 below).

![Figure 1: The Generic Business Model (based on Normann, 1977).](image)

Business models are useful for presenting the different sub-elements of a business in an organized and comprehensible way. Some authors (Normann, 1977; Galbraith, 1982) use three levels of representation: i) the value proposition (i.e. the products); ii) the organized
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activities, systems and resources that produce it (i.e. the organization); and, iii) the pro-
spective buyers of the products (i.e. the market). Organizing these levels in a sequence
represents the firm’s transformation process, i.e. the process that turns inputs into outputs
that can be delivered to customers. This highlights a number of critical aspects, of which
some of the more important are included in the illustration above.

The transformation process starts in the internal environment and is under the influence
of management. This internal part of the process can be viewed as a value chain (Porter,
1985). Efficiency is determined by how well the organization utilizes resources and activi-
ties in the creation of products. The consistency of the strategy (Rumelt, 1980), when it
comes to the alignment of suitable activities (Porter, 1991; Powell, 1992) for creating the
products in question, determines the level of internal fit or internal consonance (Miller,
1992; Normann, 1977). Products are then exchanged for money through transactions
with customers in the market, which is a part of the external environment. The fit of the
products in regard to the requirements of the environment is referred to as external fit
(Miller, 1992) or (external) consonance\(^{15}\) (Rumelt, 1980). In this model, the products are
between the organization and its environment, providing a link of interaction between the
two, but alternative models exist (e.g. Morris et al., 2006; de Witt & Meyer, 2004).

Business models goes beyond the more superficial concept of generic positions (Porter,
1985). It takes a holistic view of the firm in its context, arguing that a superior business
model is required for competitive advantage in strategic time horizons (Norman, 1977;
Porter, 1995). The business model’s importance for competitive strategy is ascribed to its
system character, with a specific configuration of resources, activities, administrative sys-
tems, and products, developed over a long period of time in order to serve a specific
niche or segment in the market (Carlsson & Dahlman, 2000; Normann, 1977; Selznick,
1957). Such business models give an advantage that is difficult for rivals to overcome,
because they need not only to imitate or substitute a single product or resource, but an
entire configuration of elements and their fit, just to catch up (Porter, 1995). The theory
of business models is commensurable with the resource-based view of firm and its impli-
cations for strategy (Barney, 1991), as well as the later work of Porter (1991, 1996) where
position is considered the result, not the cause, of competitive advantage.

Business Models and Change

Strategic considerations concern the future and should therefore include the achievement
of a dynamic, not static, balance between the levels of the business model. To illustrate
long-term strategy, the business model should relate the present business to a beneficial
longitudinal development (Porter, 1991). Consequently, it should reflect managers’
simultaneously consideration of the transformation process and the firm’s development proc-
 ess (Normann, 1977). The development process refers to when change in the external
environment needs to be matched by change in the product portfolio, and, in order to
maintain reasonable efficiency, organizational change. (Alternatively, a change in organi-
zation and products can create a market that can be exploited.) Figure 2 illustrates the

\(^{15}\) Miller (1992) points out that under some circumstances, (i.e. high external uncertainty) the two forms of fit
may be in conflict with each other and very difficult to achieve simultaneously.
transformation process and the development process, and the change required to maintain internal and external fit when the markets change \((M_0 \neq M_1)\). Its essential message is that new products need to be developed to match the future market \((M_1)\) if the development time is relatively long compared to the speed of external change. In addition, the organization should normally be changed as well, in order to maintain adequate internal fit over time.

![Diagram showing transformation process and development process](image)

**Figure 2:** Transformation Process and Development Process.

The result of the development process over time is coherent with a view on strategy as an iterated allocation of resources (Noda & Bower, 1996), even though such a view under-emphasizes fit considerations and central aspects of entrepreneurial activity\(^{16}\). By including both the transformation process and the development process, the business model serves as a unifying framework that relates value creation, generic strategy and competition, with change and development issues. Thereby, it includes the building blocks needed for a way linking strategic management to entrepreneurship (Morris et al., 2006), as will be further explained below.

### 2.1.2 Business Models, Corporate Strategy and Corporate Entrepreneurship

The business model can be an illustration of a single-business firm, or of one of the businesses in a multi-business firm. In a single-business firm, change of the business model can be an effect of changes in the business strategy that includes a need for different strategies.

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\(^{16}\) Viewing entrepreneurs as resource reallocators misses the important point that it may be how the allocation takes place that is the critical aspect (Venkataraman & Sarasvathy, 2001). Most likely, there are many more unproductive ways to reallocate a set of resources than there are ones that result in successful innovations. Labeling entrepreneurs as reallocators would hence be much like calling an artist a “paint mixer”, totally ignoring the key aspects of artwork.
development efforts. In a multi-business firm, the decisions about which businesses to engage in and the management of the array of business units are key components of the corporate strategy (Porter, 1987). Strategy at this level is proposed to be the result of resource deployment prioritizations, based on the current and future prospects for each business (Hedley, 1977), and synergy versus risk trade-offs (Porter, 1987). (Competitive strategy, on the other hand, refers primarily to the business unit level, as it is in the specific product-market nexus that direct competition takes place.) Govindarajan & Gupta (1984) argue that the corporate strategy results in a strategic mission for each business unit, and propose four concrete mission alternatives: build, hold, divest and harvest. However, corporate executives also have two additional alternatives: the creation of a new business unit, and the change of an existing business unit (e.g. Guth & Ginsberg, 1990).

Changes of the business model in a single-business firm, or in the set of models in a multi-business firm, occur over time as a result of the previously mentioned development process(es). If the changes concern the business part of the models (i.e. the top half of figure 1 above) one can talk about business development. The following picture exemplifies the change of a corporate portfolio through business development: Strategic business unit (SBU) B is sold or shut down, SBU C is changed, and two new businesses are added: SBU D and E. The lines between business units symbolize the possibility of synergies.

![Figure 3: Corporate Level Illustration of Business Development.](image)

Corporate entrepreneurship concerns the constructive business development alternatives above, i.e. changing or adding businesses. While adding a business concerns the establishment of a complete business model, changing a business refers to alterations in an existing business model. Figure 4 below illustrates some of the alternatives of the latter case, through a number of possible moves for a business unit (or single-business firm). Business development alternative 1 illustrates a firm expanding into a new market and establishing another base for transactions of the current product. Alternative 2, on the other hand, illustrates the replacement of a market with another market, which may for instance occur when a market is abandoned because of intensifying rivalry. Alternative 3 is a case of product replacement, while Alternative 4 illustrates the simultaneous diversifi-

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17 Competitive strategy is often seen as synonymous with business strategy. However, successful business strategy has to meet several criteria according to Rumelt (1980), including consonance (i.e. generic strategy) and advantage (i.e. competitive strategy).

However, business units in multi-business firms can obtain some additional competitive strength from their corporate strategy through synergies. Synergies can be attained through: i) activity sharing; or from ii) leveraging product offering; or, iii) leverage of market channels or brands (de Witt & Meyer, 2004; Porter, 1987). These three options correspond to the different levels in the business model, figure 1, above.
Theoretical Framework

cation into a new business while abandoning the previous one. The issue of alternative business development moves, or directions, will be discussed more in section 2.2.4.

Recall that the research presented in the previous chapter show that business development can either be driven by a long-term development strategy or it can emerge as a pattern of pursued ventures that happen to become available to managers (or mix of these alternatives). Regardless of origins of individual strategic actions, one may assume that some firms try to deliberately influence their development process, which is an activity of fundamental strategic nature (Normann, 1977). In other words one may “...see part of top management’s task as intervening in the emergent strategy process and attempting to maneuver the enterprise to a preferable course of direction” (Noda & Bower, 1996: 159).

Now, the alternatives for realization of business development are limited. Commonly mentioned alternatives are: i) internal development; ii) acquisitions; iii) joint ventures; iv) licensing; and v) venture capital investments (e.g. Roberts, 1980; Roberts & Berry, 1985). Some authors include several of these alternatives in corporate entrepreneurship (e.g. MacMillan et al., 1986), but others, including this author, have more narrow classifications. However, in order to classify the alternatives, corporate entrepreneurship must first be defined. This is the purpose of the next section. At this point, it is sufficient to state that corporate entrepreneurship is a vehicle for constructive business development processes (e.g. Narayanan et al., 2006), which also explains corporate entrepreneurship’s relationship to corporate strategy. Faber (1999) corroborates the assertion that SME managers engage in corporate entrepreneurship for the purpose of business development.

2.1.3 What is Corporate Entrepreneurship?

Before defining corporate entrepreneurship it is useful to declare what is meant by entrepreneurship. There is an ongoing debate regarding the definition of entrepreneurship and consensus is yet to be reached (Shane & Venkataraman, 2000). As a result, the literature is littered with alternative definitions (e.g. Wennekers & Thurik, 1999). Karlsson et al. (2004) notice that because entrepreneurship is so broad and elusive it appears impossible to produce a single definition of entrepreneurship. Most theoretical definitions are therefore broad in order to encompass all varieties of this diverse phenomenon, but this instead
tends to lead to operational difficulties. On the other hand, most operational definitions are narrow, and cover only single aspects of entrepreneurship. To reach a useful solution, this study proposes a definition-operationalization pair that is coherent and useful for the study at hand, without engaging in the debate on universal definitions.

Since entrepreneurship can appear in many forms, it is difficult to define in terms of labeling the activities involved. However, researchers seem to agree that entrepreneurship is about the creation of something new, such as new goods, new methods of production, or the opening of new markets (Schumpeter, 1934). Moreover, it appears that entrepreneurship leads to some effect on the market: Someone enters the market (Kirzner, 1973), or introduces a new solution for a need (Schumpeter, 1934), or addresses a new (i.e. previously unmet) need. So, instead of trying to list all types of activities that are entrepreneurial, it is possible and more practical to delimit the phenomenon by making a statement about its consequences. In this study entrepreneurship is hence defined as:

*The activities undertaken for the introduction of new elements to the set of products and services offered to a market.*

Analyzing this definition leads to a number of observations:

First, note that the communality is in the effect. This formulation therefore avoids the problem of defining the actual activities, which tends to be difficult to do in a concise way because of their enormous diversity. It simply encompasses all kinds of activities that lead to what we commonly recognize as the result of entrepreneurship.

Second, some researchers might want to modify the definition to include only realized entrepreneurship (i.e. the *successful* introduction of new elements…), for instance if economic effects are studied. However, this study focuses on motives for entrepreneurial activities, and should be unrestrained on this point due to the risk for survival bias.

Third, imitators entering a market can be considered entrepreneurs according to this definition. Their entry provides a new transaction option for buyers, which can be seen as a sufficient differentiation for qualifying as a “new element”. In practice there are usually a number of differencing attributes between the offerings of firms, even when the products are essentially the same. Examples include, but are not limited to, brand name, purchasing process, payment conditions, packing, color and delivery time. Nevertheless, it is important to realize that mere increase of volume is not entrepreneurship because it increases the amount of current elements in the market, rather than introduces new ones.

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18 Compare to Wennekers & Thurik’s (1999: 46-47) somewhat unwieldy attempt with an activity-based definition after reviewing 13 previous definitions of entrepreneurs in economic theory:

“Entrepreneurship is the manifest ability and willingness of individuals, on their own, in teams, within and outside existing organizations to:

- perceive and create new economic opportunities (new products, new production methods, new organizational schemes and new product-market combinations) and to

- introduce their ideas in the market, in the face of uncertainty and other obstacles, by making decisions on location, form and the use of resources and institutions.”
Theoretical Framework

Fourth, the definition allows for any economic actor to be an entrepreneur: Individuals, firms, institutions and so forth. This last point leads to a natural definition of corporate entrepreneurship as a subset of all entrepreneurship:

**Entrepreneurship within established firms.**

From the firm’s point of view, this definition is coherent with Guth & Ginsberg’s (1990) definition, i.e. activities of seeking and exploiting new business opportunities. This is, in turn, consistent with the creation of new business within an existing firm (cf. Zahra, 1991). It is also coherent with the view of entrepreneurship as new entry (cf. Lumpkin & Dess, 1996). New entry involves, for a firm, moving into a new product-market combination, which in successful cases results in the addition of new elements in the set of offerings in the target market. Corporate entrepreneurship is nevertheless partly different from intrapreneurship, “innovation initiated and implemented by employees”; something which may, or may not, happen during a corporate venture (Carrier, 1996: 6).

When it comes to operational definitions, it is more fruitful to start from the entrepreneurial activities (Karlsson et al., 2004). What is needed is an operational definition that differentiates corporate entrepreneurship from other forms of business development, and can be used for directing subsequent data collection activities to the right attributes of an appropriate unit of analysis. The alternatives for constructive business development (see section 2.1.2, e.g. Narayanan et al., 2006; Roberts & Berry, 1985) are good candidates for grouping of activities, which now can be evaluated against the definitions above:

- **Internal development** is consistent with the definition of corporate entrepreneurship; it concerns internal activities for the introduction of products to a market. This may be realized through a new area of business or through a change of the transactions the organization is engaged in (i.e. replacement of a business area).

- **Acquisition** refers to a change in ownership structure, and does not in itself introduce products or services into a market. Buying a new business and adding it to the corporate portfolio is hence a form of business development that cannot be considered corporate entrepreneurship. The products and markets remain the same unless the firm undertakes additional activities. (For instance, in some cases, acquisitions may be a part of new entry efforts included in a corporate venture, and would therefore be a component of corporate entrepreneurship if it is supplemented by internal development.)

- **Joint venture** refers to the establishment of a venture in collaboration, and shared ownership, with another firm. If the purpose is to introduce new products or services it can be categorized as entrepreneurship. However, it would be a special case of start-up, rather than corporate entrepreneurship, as the activities take place in a separate organization.

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19 One may argue that a criterion for labeling entrepreneurship as “corporate” should be that it concerns activities that are intentional and sanctioned by top (or corporate) managers. But such a criterion concerns the existence of top management motives and the impact of such motives on the venture selection process, which remains to be empirically verified under RQ1.
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- **Licensing**, like acquisitions, is not entrepreneurship in itself; it is not necessarily done for the introduction of new products or services. However, licensing can be a resource acquisition activity, i.e. purchasing knowledge and rights to use someone else’s intellectual property, required for an entrepreneurial endeavor. Resource acquisition is, however, not very useful as an operationalization as they are not to be considered as entrepreneurship if they are done for purposes other than product or service introductions.

- **Venture capital investments** are sometimes made for business development purposes. However, the activities directly related to creating and introducing the product does not take place in the investing firm, and can therefore not be claimed to be corporate entrepreneurship for that firm.

Internal development of a new business hence seems to be an appropriate start for operationalizing corporate entrepreneurship. Several other authors have also equaled corporate entrepreneurship to the undertaking of internal development. Burgelman (1983a) for instance, refers to corporate entrepreneurship as the process whereby firms engage in diversification through internal development.

However, to arrive at a practical operationalization one should recognize that corporate entrepreneurship is the effect of interlocking entrepreneurial activities of multiple individuals (Burgelman, 1983a). The collective interlocking activities, related to one business development attempt, represent one instance of manifest corporate entrepreneurship, referred to as a **corporate venture**. The corporate venture is a valid operationalization of corporate entrepreneurship that is appropriate for answering the current research questions, since motives, characteristics, uncertainty, and outcomes all concern the venture level. The corporate venture will, for these reasons, also be the unit of analysis. According to Block & MacMillan (1993: 14), corporate ventures: “…may include major new products, development of new markets, commercialization of new technology, and major innovative projects. They can involve a market diversification or be closely related to the company’s other business.”

At this point it should be clear how this study recognizes corporate entrepreneurship, and that its relationship to strategy is that it provides a means for realizing business development. Burgelman (1991) proposed that the development process occurs through the variation, selection, and retention of venture initiatives. This view puts an internal evolution process as the driver of firm development, and sees venture selection as the rudder. In line with this view, the following section briefly describes the venture selection process, and explains the role played by motives, in preparation for the research answering RQ1 and RQ2.
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2.2 Theory for Exploratory Research (RQ1 and RQ2)

The first research question (RQ1) is stated in a way that is answered by identifying and mapping out empirical patterns, which implies an exploratory approach. To answer RQ2, the study needs to link motive patterns to characteristics of ventures with some level of credibility, which is achieved by demonstrating the significance of relationship in a large enough sample of ventures (see the method discussion in chapter 3 for details). This is possible if the motive patterns are established for the same venture set as the one used for the rest of the investigation. To prepare for the development of an instrument for exploratory research one can conduct in-depth pre-studies, or construct a tentative theoretical model, based on available bits and pieces in previous research. The latter approach is used in this study, primarily because of time and resource constraints, but also because numerous useful propositions were available that appeared promising for adaptation to venture-level research.

- The first three sections below prepare for the exploration of top managers’ venture selection motives, needed for answering RQ1. This includes an overview of venture selection (2.2.1), an introduction to motives (2.2.2) and the identification of tentative motive categories (2.2.3) as the groundwork for operationalizations in the next chapter.

- Sections 2.2.4 to 2.2.6 prepare the empirical examination of RQ2 by outlining some important venture characteristics. Since the central phenomenon in this study is venture selection, the focus is on characteristics that, in the reviewed literature, appeared to have possible significance for this decision. In essence, it appears that motives affect selection, from available venture alternatives, mainly because they have impact on the preference for opportunity size (2.2.5) and origin (2.2.6), as well as on the suitability of different business development directions (2.2.4).

2.2.1 Motives and Venture Selection

Without top management consent, initiatives normally do not progress beyond exploration and internal experimentation (Burgelman, 1983a). The limited available research on SMEs suggests that the top managers’ spatial and structural closeness to, or involvement in, operations have a twofold influence on the venture process: i) managerial presence and insight make it more difficult for low level employees to experiment and use resources freely; and, ii) top managers are better situated to see opportunities and to experiment themselves, than is the case in larger firms. Early engagement, and even top manager venture initiatives, may hence occur more often in smaller firms (Faber, 1999). Correspondingly, SME top managers have been observed changing the strategy due to issues in the corporate context, and then using corporate entrepreneurship as one of the means for realizing the modified strategies (Carrier, 1996; Faber, 1999). When it comes to the selection of specific ventures, authors seem to agree that pursuit decisions normally are the results of assessments of venture initiatives, as possible courses of action, in relation to the strategic situation (Burgelman, 1983a; Carrier, 1996; Faber, 1999; Sorrentino & Williams, 1995). This research project, focuses on selection and how it constitutes a link between ventures and strategy, and therefore disregards directionality issues. Under this
Theoretical Framework

simplification one can conceptualize a model where top managers’ motives relate the selection decision to the underlying considerations, regardless of the initiative’s origin within the organization (as shown below, in figure 5).

![Simplified Venture Selection Model](image)

**Figure 5:** A Simplified Venture Selection Model.

Notice that on the left side of the selection box ventures are referred to as initiatives, signifying that it is the selection decision that transforms initiatives to formal corporate ventures. The selection of ventures is one of the ways top managers can try to influence the development process. We cannot presume that this takes place as neatly and ordered as figure 5 implies, that all motives are strategy related, or even that there is a formal strategy in the first place. But if a venture is selected, it occurs in association with the existence (Faber, 1999) or development (Burgelman, 1984a) of a rationale that incorporates the venture in a development strategy. In line with statements in chapter 1, the assumption in this research is that this rationale answers why the venture is pursued, thereby conveying hints about the role the firm hopes that the new business field will play. This leads us on to the issue of motives.

**Entrepreneurship and Motives**

When studying entrepreneurship motives, researchers tend to look for personal needs and values, and try to use models for estimating how much these aspects predict individuals’ likeliness to become entrepreneurs (i.e. self-employed). In the entrepreneurship field, this is usually referred to as the personality traits stream of research, where behavior, psychological characteristics, and cognition theory are used to explain who the entrepreneur is and what drives him or her (e.g. Baron, 2004; Brockhaus, 1980; Dahlqvist & Davidsson, 2000; Dutta & Thornhill, 2007; Gartner, 1988; Meeks & Meyers, 2005; Simon, Houghton & Aquino, 1999; Vesalainen & Pihkala, 1999). Commonly used motives are: i) need for approval; ii) perceived instrumentality of wealth; iii) degree of communitarianism; iv) need
for personal development; v) need for independence; and vi) need for escape (Schinberg & MacMillan, 1988). However, while some of these motives may affect corporate venture selection, they seem to disregard the strategic situation of the firm. In addition, motives that lead to a start-up decision may not be operative at the firm’s later stages and for other decisions (Orser, Hogarth-Scott & Wright, 1998). The motives proposed by this research stream do therefore not suffice for the current study.

Research on motives for entrepreneurial firm-level actions appears to be far more uncommon than research on motives for self-employment. Exceptions exist, as there are a few studies that address motives for corporate entrepreneurship as a mode of firm-level behavior (Kuratko et al., 2001; Morris, Altman & Zahra, 1999). Even though these studies confirm the link to strategic environmental issues, and propose that corporate entrepreneurship is a logical response to emerging opportunities and threats, they are, from the venture-oriented perspective of this thesis, on an aggregated level and therefore only partly useful. Similarly, a small number of studies investigate the growth intentions of owner-managers, for the purpose of understanding the antecedents of growth (Orser et al., 1998; Wiklund, 1998; Wiklund, Davidsson & Delmar, 2003). While owner-manager intentions appear to have a large impact on firms’ actions, these studies do not relate these intentions explicitly to venture decisions, but to the pursuit of growth in general.

Venture motives for corporate ventures were examined in research presented by Block & MacMillan (1993). According to these findings, US and Japanese companies’ primary venture motives relate to: i) maturity of the base business; ii) the meeting of strategic goals (including strategic fit; which concerns desired types of markets, products and technology to focus on, and the level of divergence and synergy versus present business that is acceptable); iii) competitive advantage; iv) potential sales and ROI; and v) opportunity to create a market. The following motive discussion (section 2.2.3) encompasses these alternatives, but uses another way of categorization.

In summary, while there are many hits about possible motives in the firm-level literature, there appear to be very few studies specifically investigating corporate venture motives. The next step is, therefore, to take a step back to clarify what motives are and how they relate to actions, and then summarize the applicable literature’s suggestions regarding motives in a structured way that facilitates subsequent operationalizations and testing.

2.2.2 Motives and Actions

The logic of motivation theory is that an individual’s motivation to perform a task determines the likeliness that he or she will actually perform the task, as well as the energy spent on it. Motivation relates to a number of different theories that range from the psychology of individuals to the action in question (see figure 6 below). For the following discussion, it is useful to focus on how motives, at different levels, constitute elements that influence the propensity to take the actions of interest (i.e. motivation for selecting a venture).

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20 See Wiklund (1998) for an overview and evaluation of motivation theories applicable to entrepreneurship research.
Needs \(\rightarrow\) General motives \(\rightarrow\) Specific motives/Intentions \(\rightarrow\) Action

**Figure 6:** Model of Motivation (adapted from Locke, 1991; see also Wiklund, 1989)

Management studies of motivation for firm-level actions tend to focus on motives proximal to the actions of interest, see figure 6 above (Wiklund, 1998). In this case, the action concerns venture selection. It is possible to make at least two observations, based on the nature of the decision-making situation, that have implication on the following discussion of motives.

- First, while values and personal needs tend to influence individual decision makers, the situation, the decision context, and the dominating cognitive processes are very different when deciding on corporate ventures compared to independent startups (Corbett & Hmieleski, 2005). For instance, in contrast to when individuals consider starting a new firm and going into self employment – for corporate ventures the firm is already started and the decisions are, for the decision maker, normally a part of the current role, rather than a question of changing into a very different role.

- Second, since the decision to select a venture concerns benefits and costs for the firm – or at least that venture proponents need to demonstrate firm-level cost-benefit arguments in order to achieve the necessary commitment – one can expect that firm-level issues and business related rationales play a relatively large role for venture selection decision, in comparison to personal needs and values. Or, to put it in other words, SME managers tend to be personally motivated to prioritize enterprise needs because of his/her role (Carrier, 1996). (The empirical investigation will nevertheless need to verify if this is the case.)

**General and Specific Motives**

Investigating the motives for a decision means questioning *why* it was made. The answer, *because…*, may contain both general and specific elements. The “specific because” explains the specific action. These motive elements are the actor’s intentions of an action, i.e. his or her specific *purpose*, or the intended end or goal aimed at. For the actor, the success or failure of an action depends on whether the purpose was achieved. More general motive elements contain the motives for actions in the sense that they concern the underlying *reasons*, in background and circumstances, which induced the action\(^{21}\). The relationship

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\(^{21}\) The existence of general motives does not automatically mean that there is an intention. For example, imagine that top managers perceive some circumstances that have strategic implications for the firm resulting, in motives to take action; they may nevertheless have no intention to take action. But, unless the venture is unintended
between intention and general motive is thus that these motives explain the intention, in other words, they provide part of the reasons the intention occurred (c.f. Locke 1991; Locke & Henne, 1986).

In this manner, specific motive (intentions) elements shape what is done, because they make some courses of action more suitable than others, while general motives explain why something appears worth doing. General motives are hence more distal to action and closer to values and needs.

Unfortunately, neither motives nor intentions can be reliably deducted from observing actions. To learn about them, one need to get information from the actors themselves regarding what they intended to achieve and why. However, because each venture is unique one can expect substantial situation specificity. To reduce complexity, it is beneficial to develop a number of tentative categories of likely motives based on previous research and then operationalized these. But where could such categories be found?

- Starting with the general motives and values, individuals are aware of these (conscious or subconscious) motive elements, in contrast to needs which individuals may be unaware of. In addition, these elements concern what is valued or considered beneficial (Locke, 1991). The individuals of interest in this study are the decision makers in the selection process, i.e. the top managers according to previously mentioned research. Their motives and values may refer to what is beneficial for them (personal motives) or for the firm (strategic motives). However, Miner (1978) argues that motivation is related to the individual’s role (i.e. role motivation theory) and that values, therefore, are influenced by attributes associated with success in that role. Since the perceived successfulness of top managers is strongly interconnected with the success of their firms, managers may be motivated to pursue actions that are beneficial for the firm. As a result, it is likely that personal and firm motives are largely aligned. In more specific terms, it is arguable that the rationale for why ventures are worth pursuing tends to be substantially influenced by the contextual circumstances the firm faces (Sorrentino & Williams, 1995). Conceptualizing motives from strategy literature therefore appears to be an appropriate starting point.

- Regarding more specific motives, Bird (1986) claims that entrepreneurs’ intentions tend to be directed to desired end-states, and that they pursue these with tight focus, aligning organizational efforts and resource employment accordingly. Pursuit of desired end-states is coherent with expectancy-value theory, which has been successfully applied in investigations of motives behind small firm managers’ choices (Wiklund et al., 2003). In short, this theory predicts that a person’s attitude towards an action is strongly related to the person’s beliefs about performing that action, including its consequences (Ajzen & Fishbein, 1980). In other words, persons can be expected to be motivated to engage in activities that they associate with positive and attainable consequences and vice versa. Since corporate ventures
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are usually undertaken under strategic urgency (Stopford & Baden-Fuller, 1994), one may expect the desired end-states to concern positive effects in areas of importance for the firm’s survival or development. An appropriate starting point for orientation categories could, for that reason, be to outline common areas of desired effects, thereby allowing a more specific categorization of urgency during the analytic stage. Moreover, Wiklund (1998) proposes that theories of motivation suitable for entrepreneurship studies should address direction, rather than intensity, of action. I will therefore use the word orientation to refer to the primary area in which the firm hopes the venture will have effect.

For the sake of simplicity, I will refer to categories representing both specific and general motives as motives categories in the following presentation. The approach to define and operationalize broad tentative motive categories facilitates empirical range, while maintaining some structure. This, in turn, is intended to benefit an explorative data examination, aimed at finding underlying patterns of motive dimensions. Empirically identified dimensions appear to be appropriate when pursuing RQ1 and RQ2, given the limited amount of previous investigations on motives for corporate ventures.

2.2.3 Tentative Motive Categories

While the most intuitive strategic reason for business development might be a desire to achieve more growth than the current business can support, there are also several other possible motives. Previous research indicates that established companies invest in corporate entrepreneurship for a multitude of reasons (Stopford & Baden-Fuller, 1994), such as growth, responding to competitive pressure (Block & MacMillan, 1993; Kuratko et al., 2001), and generating strategic renewal (Burgelman 1984b; Guth & Ginsberg, 1990). However, no single isolated independent cause of entrepreneurship has been identified so far. Instead, it is suggested that firms undertake ventures when motives reach a threshold level of perceived urgency, of a kind that the organization can try to handle by internal actions (Stopford & Baden-Fuller, 1994). As there may be more than one motive behind a venture, the conceptualizations need to facilitate measuring a number of elements that collectively form some sort of configuration of reasons and purposes. Moreover, an operationalization should allow for the possibility of simultaneous influence from both personal and professional factors, as well as the existence of both pecuniary and non-pecuniary expectations (Orser et al., 1998). This is facilitated by the creation of several tentative motive categories for empirical evaluation.

While there is little research on motives for individual corporate ventures, there is some literature that discusses firm-level behavior and strategies that could result in the pursuit of ventures, making it possible to present implied motives. Three tentative motive categories for venture selection could be delineated from this literature. Two of these categories concern general motives, pertaining to why top managers may perceive a venture as a beneficial course of action for meeting the firm’s strategic situation. The third category captures more specific motives elements in terms of venture orientation.
Orientation

While the precise desired outcome of a venture probably is rather case specific, strategy and corporate entrepreneurship literature circles around three main areas of expected benefits that appear researchable and applicable to SMEs (Narayanan et al., 2006): Economic benefits; market benefits (Garud et al., 2002; Zahra, 1995; Zahra & Covin, 1995); and learning benefits, i.e. the development of competences (Birkinshaw, 1997; Johnson & Scholes, 1997; Sathe, 2003). These may be thought of as intentions in terms of venture orientations, as further explained below:

- **Economic** benefits concern business growth and/or business sustainability. Business growth intentions are often the assumed reason for corporate entrepreneurship. This is reasonable since business growth comes from transactions only, and can be achieved only through increasing the value (price) or volume of transactions. The creation of a new business adds a transaction base to the corporate portfolio that, if successful, increases the volume of transaction (or compensates for declining revenues in other businesses). This is partly coherent with a strategic build mission as described by Gupta & Govindarajan (1984). Since economic benefits are a reasonable motive, and commonly the presumed intention for corporate entrepreneurship, it needs to be evaluated as one of the possible motives for engaging in ventures. Previous empirical research has confirmed that many growing firms exhibit entrepreneurial characteristics (Hitt & Duane, 2000). However, even if growth is a typical priority for firms pursuing corporate entrepreneurship, it does not preclude venturing among firms that are not growth-oriented. (Carrier, 1996).

- **Competitive** position is another area where a decision maker can hope for venture effects. Firms may engage in new ventures as a part of their competitive strategy, and recognize the expected business development benefits in terms of market position, competitive strength and rivalry. For instance, Burgelman (1984b) found that top managers sent strong signals regarding the importance of quickly making an impact on the competitive positions (rather than emphasizing the economic performance of ventures). Carrier (1996) finds that SME top managers sometimes use ventures to accentuate their current competitive advantage, or to develop new ones. It is important to acknowledge this strategic orientation because several of the proposed causes for corporate entrepreneurship, like needs for renewal and new technologies entering an industry, tend to manifest themselves as increased competitive pressure (Cooper & Smith, 1997; Porter, 1985; Schumpeter, 1934).

- **Competence** development, or learning, is a strategic benefit of corporate ventures (Birkinshaw, 1997; McGrath, 2001; Narayanan et al., 2006). This orientation concerns the launch of ventures in a desire to channel the development of the firm’s competence in directions that are perceived to be of long term strategic importance (Covin & Miles, 2007; Johnson & Scholes, 1997). Competence orientation thus occurs when managers expect a venture to provide knowledge benefits that may, for instance, bring access to new markets and new technologies (Narayanan et al., 2006). One may therefore expect that it is more of a long-term priority, compared to economic concerns. It is also possible that competence development
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is an indirect motive, and that more direct economical and strategic concerns may be more decisive for the start of a particular venture. However, strategic learning is a distinct motive whenever the firm uses venturing to deliberately acquire knowledge with the intention of influencing the firm’s path-dependent long-term development process (Normann, 1977; Thorén & Brown, forthcoming). Faber (1999) speculates that smaller firms have greater capability of learning from venturing, since top managers are more involved in the entrepreneurial activities.

Because both competitive strength and competences are linked to survival and growth, at least according to strategy literature, ventures may have intentions that cover several orientations. That would result in a motive overlap in the empirical patterns. In particular, the two later orientations may be endogenous to overarching economic objectives. However, it is also possible that the different orientations represent distinct motives, for instance because they are related to different time horizons. These issues will therefore be left to the empirical exploration.

Posture

The literature review provided hints about circumstances managers perceive as strategic urgencies that warrant venturing. Some literature argues that firms engage in ventures as insurance, in case mainstream business performs poorly, rather than as a part of a long-term development strategy (Burgelman, 1984b). Avoidance of negative consequences is a broad motive, emphasized primarily in strategy literature, and it implies that corporate entrepreneurship tends to be threat driven (Burgelman 1983a; Christensen, 1993; Peterson & Berger, 1971; Cooper & Smith, 1997). Some of the entrepreneurship literature, on the other hand, argues that entrepreneurship is primarily opportunity driven (Brown, 1998; Kirzner, 1973; de Koning & Brown, 2001; Stevenson & Gumpert, 1985; Stevenson & Jarillo, 1990). Others take a broader position and propose that threats to firm survival, as well as tempting opportunities, can stimulate venturing (Block & Macmillan, 1993; Carrier, 1996; Kuratko et al., 2001; Stopford & Baden-Fuller, 1994).

The identification and pursuit of opportunities are cornerstones in entrepreneurial activities (Shane & Venkataraman, 2000), and several recent contributions to the academic literature rely on opportunity as the key defining element of entrepreneurship (e.g. Brazael, 1999; Churchill & Muzyka, 1994). There are compelling arguments that opportunity is a requirement for the entrepreneurial process, which means that a (detected or created) opportunity is always needed for entrepreneurship to take place (Shane & Venkataraman, 2000). This, however, makes it problematic to use opportunities as an operational motive category in cross-sectional studies, an ambition to grasp an opportunity may therefore be present also in cases when the main trigger is actually a threat.

A more unambiguous way to conceptualize urgency may be to create a tentative dimension that describes whether the motives are of offensive or defensive nature. The idea of

Know-how and information are important outputs of the venture process (Burgelman, 1984b) that can act as input to the formation of new competences. However, effects in each orientation can be obtained regardless of the success or failure of the venture in the other orientations. For instance, it happens that managers therefore perceive a failed (terminated) venture attempt as a success because of large learning effects (Sathe, 2003).
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offensive and defensive strategies has appeared in previous research (Dwyer & Mellor, 1993; Cooper, 1985). As ventures are means for carrying out strategies, it is quite possible that they constitute the realizations of offensive or defensive strategic moves. For example, ventures for entering into new geographical markets can be defensive responses to competitive pressures brought about by the intense global business environment (Covin & Slevin, 1997), or they can be manifestations of strategies for diversifying out of maturing industries (Jolly & Kayama, 1990). This research henceforth refers to firms’ propensity to confront or avoid circumstances (e.g. competition and risky situations) as posture, implying that general motives for a venture might be characterized as either offensive or defensive. In this manner, posture provides part of the explanation why the venture is worth pursuing. When this motive category is combined with the three orientations, researchers are able to analyze why-issues with much more precision than a single opportunity-threat category would allow.

Adaptive Style

The third category concerns the link between firms’ responsiveness to the strategic conditions and the starting of a venture. Inspired by Miles & Snow (1978), I will refer to this category as adaptive style. Theoretically, adaptive style can range from very proactive to very reactive. When examining threats in the external environment as triggers for corporate ventures (Burgelman, 1983b; Fast, 1979; Peterson & Berger, 1971), the assertion that a venture is preceded by high urgency and the pre-empting of all other alternatives suggests that ventures are reactions to circumstances. Firms that are reactive avoid taking the risks associated with developing new products or services unless there is an urgency caused by present circumstances. To take a defensive example, a reactive firm may start a venture if it is threatened by a competitor’s move (Davig, 1986). Miles & Snow’s (1978) strategy typology includes reactive behavior of firms, but seems to associate reactors with passivity, general unawareness, and inconsistency in activities and decisions. However, reactions, as well as proactions, require analysis; only passive firms may be relatively ignorant or indifferent to contextual circumstances (and those firms are, per definition, not pursuing corporate entrepreneurship). In addition, for individual ventures, being a reaction can be either an advantage (e.g. lower uncertainty because of second mover advantages) or a disadvantage (e.g. there is less time available for development efforts), depending on the situation.

Firm-level conceptualizations that build on Miller & Friesen’s (1982) and Mintzberg’s (1973) work instead emphasize proactiveness as a distinguishing feature of entrepreneurship (e.g. Covin & Slevin, 1986; Miller & Friesen, 1986). For instance, Miller (1983: 771) proposes that “an entrepreneurial firm is one that engages in product-market innova-

23 On the firm level, it has been proposed that some firms may exhibit a tendency toward offensive or defensive actions over time. Miller & Friesen (1987) suggest that defensive firms are reluctant to engage in product innovation and prefer to protect the domain of their existing business to the extent possible. If they start new ventures they tend to be cautious in order to minimize the risk of making costly decisions. In the entrepreneurship field, a more offensive strategic posture is included as an indicator of entrepreneurial management (Brown et al., 2001; Covin & Slevin, 1986). However, previous quantitative entrepreneurship studies largely fail to recognize that entrepreneurial behavior can be driven by defensive motives.
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tions, undertakes somewhat risky ventures, and is first to come up with ‘proactive’ innovations, beating competitors to the punch.”

To be proactive means trying to shape actions in respect to anticipated possible future conditions, in order to be better aligned with these conditions once they become realized. To the extent that proactiveness is a result of skill rather than luck, it requires that individuals are in attunement with relevant circumstances and their development (Bird, 1986). Attunement “is the readiness to send and receive information, influence, or meaning from other sources, and it requires vigilance, open-mindedness, extroversion, and the ability to learn from mistakes” (Bird, 1986: 450). According to strategy research, consistent proactive business development may over time enable firms to lead, rather than follow, competitors (to Covin, Slevin & Heeley, 2000). The correspondence to venture motives is straightforward: Adaptive style as a motive category concerns whether a venture represents an attempt to respond to perceived or anticipated strategic urgencies. Block & Macmillan (1993), Crick (2007), and Dahlqvist (2007) confirm the existence of both proactive and reactive ventures. For instance, in Crick’s study, concerning SMEs’ internationalization efforts, reactive motives were less common, but included saturation of the domestic market and declining sales.

Adaptive style is distinct from posture because the two dimensions can occur in any combination in a venture’s configuration of motives, even though some previous research fails to recognize this (e.g. Lumpkin & Dess, 1997, propose that proactiveness is a response to opportunities, while offensive posture is a response to threats). For example, when motives are defensive, proactiveness may lead firms to develop new products in advance of problems, because they realized that the future revenues from current products are uncertain, and the development time can be expected to be long.

Table 1: Summary of the Main Tentative Motive Categories.

<table>
<thead>
<tr>
<th>Categories:</th>
<th>Orientation/objective</th>
<th>Posture/Attitude</th>
<th>Adaptive style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternatives:</td>
<td>Economic, competition, competence</td>
<td>Offensive – defensive</td>
<td>Proactive – reactive</td>
</tr>
</tbody>
</table>

Non-strategic Motives

Exploratory studies of the motive categories mentioned above can reveal patterns of how strategic issues influence the undertaking of ventures. However, a truly exploratory study needs to be open for the possibility that the motive implications from strategy and entrepreneurship literature might be irrelevant. It would, therefore, be unwise to exclude motives that are unrelated to strategy from the investigation, as the absence of alternative

24 The adaptive style of a firm may change over time, depending on the prospects for the current main business. One of Burgelman’s (1984b: 38) respondents stated that: “They are going into new areas because they are not sure that we will be able to stay in the current mainstream business. That is also the reason why the time of maturity of a venture is never right. If current business goes OK, then it is always too early, but when current business is not going too well, then we will just jump into anything!”. Adaptive style hence relates to the issue of timing, which is complex because of the long time required for corporate ventures and the unrealistic expectations of managers, whose objective for venture completion often is less than half the average time required (Burgelman, 1984b).
choices would lead to a misleading picture of the antecedents of venturing. The research will therefore need to include alternatives for non-strategic motives, in order to verify the relevance of the motive categories above. This study includes two broad non-strategic motives.

- First, another venture antecedent that has occurred in numerous places in the literature is the intention to utilize slack resources (e.g. Penrose, 1955). Slack resources are beneficial for experimentation and hence generally positive for the probability of finding interesting opportunities. However, resource utilization can also be of managerial interest for efficiency reasons, and might therefore be an intention behind some ventures. However, resource utilization is probably not captured by an operationalization of personal and non-business motives, so it requires a separate category.

- Second, the personal desires of leading individuals have been found to have an impact on the firm’s actions (Davidsson, 1991; Orser et al., 1998; Sathe, 2003). Since venture selection is made by individuals, one needs to take into account that their decisions may be influenced by personal feelings and intuition (Bird, 1986; Stopford & Baden-Fuller, 1999). One example is need for achievement, which may lead to venturing even if no strategic urgency is present (Carrier, 1996; Davidsson, 1991). Another reason may be a need for recognition for others (Sathe, 2003). The operationalization of personal motives is, in this study, combined with asking for other motives unrelated to business issues, so the construct can be used as a balance against the main motive categories in assessing their relevance.

This makes the motive categories collectively exhaustive.

Summary

Three categories for motive description were identified in the literature. The motives of a more general nature are categorized as posture and adaptive style, while the motives concerning the purpose for the specific actions are categorized as orientation of desired effects. The three categories are related to the model of motivation in the illustration below.

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25 It also includes an item asking for the respondents’ opinion regarding the validity of the motive items.

26 Slack leaves room for autonomous strategic behavior, which stimulates entrepreneurial activities within the firm (Burgelman, 1983a). Opportunity-seeking behavior at lower levels results from availability of unused resources (Burgelman, 1983a). Lack of slack discourages experimentation and opportunity seeking (Kuratko et al., 1990). This implication could be confirmed in studies of resource-constrained small firms (Faber, 1999).
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Figure 7: Summarizing Illustration.

The “Action” box to the right in figure 7 refers to the selection of a venture in line with section 2.2.1 above. In addition to the three tentative strategic motive categories, two additional non-strategic motives were suggested. Those motives will be operationalized in order to capture the effect of values and expectancies, that influence selection, that are unrelated to the main strategic issues discussed, thereby allowing for a validation of the main categories.

2.2.4 Characteristics: Development Direction and Distance

The purpose of conceptualizing venture characteristics is i) to be able to describe and categorize ventures in order to answer RQ2, and ii) to prepare for testing hypotheses about their relationship with outcome and uncertainty when answering RQ3 and RQ4. In this, and the two following sections, the focus is on describing ventures, with concentration on those characteristics that appear to matter for venture selection. Hypotheses are developed later, in section 2.3.

During the venture, the firm needs to engage in development activities to overcome the difference between the firm’s current capabilities and the ones required to successfully exploit the opportunity (Roberts & Berry, 1985; Roberts & Meyer, 1991; Sathe, 2003). These differences between the current and new business areas can be thought about as direction and distance.

- **Direction** refers to the function of the selection process as a rudder for top managers with which they can attempt to influence their business’s development process. For empirical research it serves as a means for distinguishing between alternative business development activities required to pursue the opportunity in question.

- **Distance** can be thought of as a proxy for the amount of development efforts required for the venture, because it indicates a lack of familiarity with technology and/or
markets (Roberts & Berry, 1985). This is related to the concept of relatedness and unrelatedness in corporate diversification strategy (Sorrentino & Williams, 1995). This is often illustrated in a product-market development matrix, originally created by Ansoff (1956), see the following illustration. There are many different versions of this matrix, that for instance include process development and/or distinguish between market development alternatives (e.g. entry in new geographic market versus in new customer segments). There are reasons to believe that the strategic situation of the firm and the resulting motives and intentions for business development, influence the attractiveness of the different alternatives in the matrix. For instance, intensive rivalry can lead firms to enter new geographical markets (Covin & Slevin, 1997) or to develop new products that enable entry into a more promising industry (Jolly & Kayama, 1990).

Figure 8: Direction and Distance of Business Development Efforts.

27 Relatedness between business units in the corporate portfolio has been shown to be positive for firm-level financial performance (e.g. Bettis, 1981; Rumelt, 1982). The explanations for this finding generally refer to the utilization of synergies as a way of increasing the firm’s competitive strength (Porter, 1985). Sorrentino & Williams (1995) provide examples of such synergies, including: resource sharing (Ansoff, 1965); utilization of a central skill or competence (Rumelt, 1982, see also Hamel & Prahalad, 1994); and better returns on R&D (Bettis, 1981). Another beneficial firm-level effect of relatedness is the relatively easier corporate management (Drucker, 1974). This has led to normative suggestions that firms should look for diversification opportunities in related areas, rather than straining too far from the base business (Sorrentino & Williams, 1995), and that they should build new businesses from identified adjacencies in market channels, products, activities, customers or geographies (Zook, 2004).

However, empirical venture-level research has resulted in mixed support for the relationship between distance and the outcome of the new venture attempt. MacMillan et al. (1986) found that closeness increases the chances for success, while Sorrentino & Williams (1995) found that relatedness has little effect on venture outcome. More research is hence needed. This study departs from the assertions of Roberts & Berry (1985) and others, who claim that distance is negative for outcome, and tests whether this is the case in a SME sample (see section 4.4 below).
Anecdotal evidence suggest that advantages of closeness for venture pursuit (moving into related areas or utilizing adjacencies) include maximum transfer of skills, easier and cheaper implementation, possible utilization of synergies, and ease of gaining high levels of management commitment (Covin & Miles, 2007; MacMillan et al., 1986; Zook, 2004). Consistently, longer distance is proposed to be a disadvantage as it is a source of uncertainty that has to be overcome during the venture process. Distance, in turn, is proposed to have a strong impact on the chances for success of the venture (Fast, 1978; Kanter & Richardson; 1991; MacMillan et al., 1986; Sykes, 1986).

Ventures in the far right corner in figure 8 should, if the abovementioned assumptions are correct, be more likely to fail than ventures in the other corners. Managers are hence often advised to be conservative and do business development in small steps at the time (Zook, 2004), and to use other methods than corporate ventures for entering more distant businesses in order to reduce the risks. Roberts & Berry (1985) and MacMillan et al. (1986), among others, recommend a use of joint ventures and acquisitions for the more difficult venture alternatives. Distance, uncertainty and outcome will be discussed further in subsequent sections.

2.2.5 Characteristics: Opportunity Size

Opportunity size refers to the opportunity’s potential for creating value for the firm. It is natural to find it among the venture selection criteria in corporate entrepreneurship studies (Block & MacMillan, 1996). Burgelman (1984b) proposes that a large opportunity size helps attracting top management attention to the initiative, implying that size is beneficial for getting managerial consent. It would hence seem that ventures that target large opportunities would have a higher general probability for selection. Regarding the motives, it could be that large opportunities seem especially appealing for ventures driven by economic intentions.

The operationalization of opportunity size for examining its link to motives should recognize that it is the perceived opportunity size in the beginning of the development process that is of primary importance for selection. However, perceived size can be assumed to differ between firms with a subjectivity related to business size.\footnote{Data on size therefore needs to be collected for comparison. Further, in order to capture the impact of venture selection on outcome, the operationalization of this construct should be comparable with the operationalization of outcome.}

2.2.6 Characteristics: Opportunity Origin

Some researchers have found it useful to make an internal-external distinction based on whether the entrepreneurial ideas originate within the firm or not (Block & MacMillan, 1993; Miles & Covin, 2002; Sathe, 2003). The term origin signifies the source of inspiration for a venture, or in other words whether the inspiration is linked to phenomena inside or outside the firm\footnote{Responses to external vs. internal impulses are analogous to the perspectives in strategy formation that describe market-driven and resource-driven firm behavior (Baden-Fuller, 1995; De Witt & Meyer, 2004). Teach...}. If the sources are mainly internal, it is often a sign that the
opportunity builds on the firm’s current activities (Drucker, 1985; Teach, Schwartz & Tarpley, 1989). Such ventures are sometimes labeled as technology-driven by authors assuming that they build on underutilized production resources or technologies that can be applied in new ways (Ardichvili, Cardozo & Ray, 2003; Kirzner, 1997). In large firms, as much as 80% of ventures initiatives may be technology-driven (Burgelman, 1983b).

On the other hand, business venturing can also be triggered by impulses from the external environment transmitted to firms through cues from competitors and customers (von Hippel, 1978; Jaworski & Kohli, 1993). When firms react to such cues with business venturing they are considered to be market-driven, and the venture is consistent with market pull. External causes of corporate entrepreneurship can also concern threats, such as rapid technological change, intense competition, new entrants, and short product life cycles (Cooper & Smith, 1997; Block & MacMillan, 1993; Kuratko et al., 2001; Sathe, 2003).

Both technology driven and market driven ventures can occur in small firms (Faber, 1999) as well as in large (Burgelman, 1983b). Penrose (1968) suggest that aspirations to acquire new knowledge lead to internal impulses for growth, which implies a potential relationship between competence orientation and origin (Burgelman 1983a). Crick (2007) mentions a number of sources that have figured in previous research. Examples of internal factors include accumulated unsold inventory, differential firm advantages, and available production capacity. External factors may include changes in foreign market regulations, increased competition, value chain advantages, and serendipitous events. See Sathe (2003) for a more extensive discussion of the influence of internal and external factors on new business creation.

et al. (1989) confirm the existence of both market driven and technology driven entrepreneurship in their study of the software industry.
2.3 **Theory for Hypothesis Development (RQ3 and RQ4)**

The third and fourth research question can be examined by the formation and testing of hypotheses that are based on previous research. This section starts with an overview of the venture process (2.3.1), in order to frame the phenomena and clarify the context. It then moves on to specifying hypotheses about the link between venture characteristics and uncertainty (RQ3), as well as the proposed determinants of outcome (RQ4).

As an introduction, it is worth mentioning that despite efforts, research has not converged on any clear model that explains venture outcome in terms of success or failure (e.g. Block & MacMillan, 1993; Stopford & Baden-Fuller, 1994). For instance, reviewing research on product development efforts, which can be seen as a sub-set of all ventures, Cooper (1983) found that there is a lack of clear success and failure factors. He further proposes that this can partly be explained by the complexity and sensitivity of the process, in which failure is often the result of a few critical factors, while success requires handling of a wide range of tasks. Burgers & Van den Bosch (2006) made similar observations when studying the creation of new business. This has an impact on the selection of constructs to include in the hypothesis-testing part of the investigation.

Even though the preceding chapter mentions a number of success factors – such as internal communication, new venture champions, and top management support – these seem to mainly concern the conditions for venture process execution. The purpose of this study, however, concerns the motives for venture selection and their effects. Selection, in turn, occurs at the starting point of the process and determines venture characteristics, pertaining more to the initial conditions of the venture than to the process conditions. So, the purpose of this study motivates a focus on these aspects when forming hypotheses, even though both the initial conditions and the process of development can influence success or failure (cf. Kaulio, 2003; see also Gartner, Starr & Bhat, 1998), and will therefore be represented in the multivariate analysis (see sections 4.3 and 4.4). In summary:

The difficulty of venturing has been linked by previous research to the size of the opportunity (e.g. Sathe, 2003) and to the presence of market and technical uncertainty (e.g. Cooper, 1983). The occurrence of uncertainty is, in turn, related to the direction and distance of the business development effort, and to the opportunity’s origin (e.g. Meyer & Roberts, 1986; Roberts & Meyer, 1991). This provides a starting point for discussing the constructs of central interest for this part of the study. However, in order to structure the discussion, it will be organized around a simple model of the venture process.

### 2.3.1 A Venture Process Model

Internal development of a new area of business is realized through a process that roughly begins with the idea for a new business, and culminates when the resulting products or services are sold to customers in the market. Several activities are needed for business development to be realized: i) identification and definition of an opportunity; ii) pursuit and exploitation of the new opportunity though a venture attempt; and iii) transforming
the organization as a result of the venture (Guth & Ginsburg, 1990). The second activity (opportunity pursuit and exploitation) requires the successful completion of several critical steps of development, sometimes referred to as: i) proof of principle; ii) model shop; iii) start-up volume production; and iv) growth (Gailbraith, 1982).

This is naturally a simplified view of the process: In reality the order of activities may vary. Initial sales may, for instance, precede venture selection, if lower level employees test the idea in the market in order to accumulate credibility for the initiative before asking for top managers’ authorization for scaling up the commitment (Burgelman, 1984b). Selection and definition may be iterative and parallel to development efforts (Cooper, 1983; Gunter McGrath, 1999). The business model for the venture may also change as a result of information acquired during development activities, or even during the selection process. The venture idea may be related to ongoing ventures, autonomous experimentation, or mere coincidences (Thorén & Brown, forthcoming). In addition, top managers’ recognition of the initiative can be the result of political processes within the organization (Burgelman, 1983b, 1984a, 1984b).

Nevertheless, the phase in focus for RQ3 and RQ4 occurs between two major conceptual events in this process (Bhave, 1994; Block & MacMillan, 1985). The first is the commitment to an identified opportunity through venture selection, resulting in the start of formal development of the new business. The other is entry on the market through sales of the product, which signifies the new venture’s move to the transaction stage, where the potential rewards of the venture efforts can be collected. According to this simplified view of the venture process, it is between these two events that the firm is primarily engaged in (internal) development efforts, which must meet at least two critical development milestones:

- One milestone concerns the creation of a business concept which involves conceiving and defining a fit between a product and a market need. This business concept development refers to the critical matching of a solution or value provided (the product) to a problem or a value sought (the customer need) (Ardichvili et al., 2003). This can be seen as an extension of the pre-selection definition process, where the technical and business perspectives must become integrated (Burgelman, 1984b). Research suggests that successful firms achieve the fit through continuous product development efforts, facilitated by feedback from repeated user testing and evaluation (Cooper, 1983).

- Attaining the other milestone may occur partly in parallel to these efforts, as the firm develops the capability of actually providing customers with the product, in a volume that is sufficient for sustaining the new business. This value chain development concerns the design and implementation of processes for procurement, production, marketing, delivery and so forth (Porter, 1985).

The first milestone refers to fit of the product in relation to the external environment. The other milestone refers to the fit of internal resources and activities for production of the same products. Collectively, the achievement of these two milestones equals the establishment of a new, or changed, business model though the venture (c.f. figure 2).
Theoretical Framework

The business concept development efforts involve a double linking process (Burgelman 1983b). Technical linking is the assembly of technological knowledge to create solutions for unsolved technical problems. This is a central activity of a venture’s *product development* efforts. Need linking involves the matching of new technical solutions to unmet, or poorly served, market needs. Need linking, and related activities, are important parts of a ventures’ essential *market development* tasks.

**Overall Process Model**

For the purpose of this research, the venture process can be thought of as a pre-selection and a post-selection part, as illustrated below. Venture execution is preceded by venture motives leading to a selection of an initiative with certain characteristics. Those parts of the venture process are examined by RQ1 and RQ2, in line with the discussion above (see the left side of figure 9).

![Figure 9: Illustration of Overall Venture Process Model.](image)

Consequently, since RQ3 and RQ4 try to uncover whether *venture selection choices* influence outcome, they focus primarily on the effects of the characteristics on the post-selection parts of the process positioned to the right in figure 9. The consequences of venture selection that appear to have an effect on outcome are primarily uncertainty and opportunity size. The following paragraphs will develop hypotheses about how uncertainty can arise depending on the ventures initial conditions, described by the venture characteristics constructs, and the expected effect on outcome. However, I will start from the end of the venture process by making some comments about outcome, and then relate outcome back to uncertainty and venture characteristics.

### 2.3.2 Outcome

Previous venture-level studies are predominantly based on case studies (e.g. Block & MacMillan, 1993; Burgelman, 1984a; Sathe, 2003) and provide several suggestions about what has contributed to the outcome in specific cases. These insights helped this study to select suitable quantitative indicators for venture outcome from entrepreneurship, market development, and product development research (see details chapter in 3 methods). Product development studies and market research tend to evaluate outcome based on financial performance, market impact, and sometimes time-to-market (e.g. Chen et al., 2005; Cooper & Kleinschmidt, 1987).
However, it is problematic to use absolute performance as venture-level indicators, because an outcome that is a great failure for one firm could have been a great success for another depending on initial firm size, expectations and objectives. It therefore makes sense to evaluate outcome based on the firms’ subjective expectation (Cooper & Kleinschmidt, 1987). While this opens for potential recall bias and other problems, it is nevertheless a common approach in product development studies, which are generally retrospective for feasibility reasons (Chen et al, 2005; Yap & Souder, 1994). The same approach is used in this study, as it makes it possible to include the gathering of information about both venture selection and venture outcome in the same data gathering round. An additional, and less subjective, indicator for outcome will be used for comparison and evaluation. This indicator regards the possible termination of the venture, which is interpreted as a negative outcome (see details in next chapter). In combination, the indicators allow for the modeling of venture outcome, with performance as well as survival/termination as proxies for success and failure.

2.3.3 Uncertainty

Previous research in strategy (Cooper, 1981; Roberts & Berry, 1985; Roberts & Meyer, 1991), corporate entrepreneurship (Sathe, 2003), and product development (Chen et al, 2005; Cooper, 1983) agree that the presence of uncertainty during the new venture process is an important obstacle for success. Nevertheless, corporate entrepreneurship is always undertaken under uncertainty, since it involves striving after something new, something beyond the existing business. Due to the lack of precedence within the organization, reliance on prior experience is usually untenable (Stevenson & Jarillo, 1990; Kanter, 1985), leading to uncertainty in terms of lack of information needed for the completion of development activities (Galbraith, 1973).

Another source of uncertainty is unpredictability in conditions, as a result of industry dynamism or technological change (Chen et al., 2005; Jaworski & Kohli, 1993; Atuahene-Gima & Murray, 2004). Change in conditions makes the opportunity and the threats uncertain. It also complicates the crucial development of a business concept and of the new value chain. These venture execution difficulties are often related to one or both of two main types of uncertainty:

- **Technical uncertainty** is consistent with task uncertainty in handling the development and production issues of the ventures technical side (Chen et al., 2005).
- **Market uncertainty** refers to lack of information about exogenous conditions that determine whether there will be a sufficient demand for the new business.

The assumption that firms generally face more uncertainty when dealing with things that they are unfamiliar with is established and accepted among strategy and new venture researchers (e.g. Roberts & Berry, 1985). For example, low technical uncertainty is argued to exist when the needed technology is well-known to the firm, when there is a storehouse of information to draw on for guidance, and when the development does not need to rely on complex trial and error methods (Chen et al 2005; Jarowski & Kohli, 1993; Yap & Souder, 1994). The opposite set of conditions describes high technical uncertainty. The
level of technical uncertainty depends, according to this reasoning, on the novelty in the
production process technology and in the product technology (Tatikonda & Montoya-
Weiss, 2001). Similarly, market uncertainty arises from unfamiliarity and turbulence
regarding customer and their needs, which lead to a lack of ex ante knowledge about what
customers want, who they are, and how they can be reached (Jaworski & Kohli, 1993).

Ventures dominated by market development involve entering into new and unfamiliar
markets, and are thus expected to be associated with significant market uncertainty and its
related difficulties. Similarly, projects dominated by product development are assumed to
be associated with high levels of technical uncertainty. The most challenging ventures are
supposed to be the ones in the upper right corner of figure 6 (page 42) above. These
ventures face high uncertainty of both dimensions, because both the value sought by
customer and the solution that creates that value are unknown (Ardichvili et al, 2003).
Conversely, the most promising situation for success is when the user need is in close
proximity of the firm’s technological strengths (von Hippel, 1977). In summary, it appears
that the business development direction and distance of the venture are positively related
to uncertainty, as specified by the following three hypotheses³⁰.

- Hypothesis 1: Market development is associated with market uncertainty.
- Hypothesis 2: Product development is associated with technical uncertainty.
- Hypothesis 3: Product development is associated with market uncertainty.

When it comes to the effect on outcome, the best predictor for success appears to be
market knowledge, and in particular the existence of reliable understanding and definition
of needs in the target market³¹ (Cooper, 1979; Garvin, 2004; Von Hippel, 1977). Lack of,
or incorrect, market information was an important venture obstacle observed in the study
of Macmillan et al., (1986) and Block & MacMillan (1993). Their findings also imply that
of the different means for business development (e.g. acquisitions, joint venture, and cor-
porate venture) corporate ventures are the most sensitive to uncertainty. Similar, but less
strong, assertions have been made about technical uncertainty (e.g. Cooper, 1983). This
discussion can be concluded in the following hypothesized effects of uncertainty on out-
come:

³⁰ It might be tempting to measure only uncertainty or type of venture, and use one as a proxy for the other. However, there are at least three reasons to include both constructs. First, even though a market/technology is new in the sense that it has not been served by the firm before, it might be possible for the firm to infer information based on differences or similarities to the current business or other known customer/products. Second, even though the business is new to the firm, there might be individuals in the firm that have relevant knowledge, for instance from being a part of the market, or from previous employment. Third, previous research has shown that product development ventures are associated with both technical and market uncertainty, because even though the new product targets a familiar set of customers it is often addressing another need (Cooper, 1983). Consequently, even though venture type might be strongly correlated with uncertainty type in corporate entre-
preneurship, I would rather establish this correlation empirically than merely assume it.

³¹ Cooper (1983) corroborates that, of the two types; market uncertainty is the most important. “The ultimate success of a new product is determined in the marketplace, and market information plays a critical role in the shaping of the product and the launch strategy” (Cooper, 1983:5). Market information must hence normally be gathered in all venture attempts.
2.3.4 Opportunity Size

Large opportunities may have larger probability for selection (Burgelman, 1984b). But, while a larger opportunity might seem more attractive for the firm, a successful pursuit of a large opportunity does not guarantee a higher return, because larger opportunities tend to attract more competitors (Christiansen, Suárez & Utterback, 1998). Moreover, empirical studies indicate that larger opportunities are more difficult to exploit, and therefore more often lead to failure (Sathe, 2003). The hypothesis is, therefore, that opportunity size is negatively related to outcome:

- Hypothesis 6: Opportunity size has a negative influence on outcome (survival/failure) of the venture.

(Interestingly, a confirmation of Hypothesis 6, in combination with an acceptance of Burgelman’s (1984b) statement in the previous paragraph, would lead to the conclusion that firms are more likely to pursue opportunities that are more likely to fail.)

2.3.5 Opportunity Origin

The opportunities from internal sources tend to be more innovative and have a larger potential for growth, if they are successfully exploited (Alsos & Kaikkonen, 2004; Block & MacMillan, 1993). Moreover, while there is no theoretical support for a link to the extent of development efforts (e.g. a market-driven venture can require a lot or a little development of market or products) there is a possibility that opportunity origin impacts uncertainty levels. For instance, an internal technology-driven venture begins with an idea for a solution, suggesting that there is less than complete technical uncertainty. It can also benefit from familiarity with available knowledge and resources that fits the solution (Block & MacMillan, 1993). In contrast, internal cues and ideas may be completely disjoint from the realities of the marketplace, including the identity of suitable customers, if there even are any, and the applicability of the solution in regards to their problems or needs.

Similarly, ventures triggered by cues from the environment should be associated with relatively lower levels of market uncertainty. The external sources themselves, e.g. changing demographics, regulations, needs, industry structures, and perceptions (Drucker, 1985), imply potential customers and their problems. The fact that market conditions inspired a venture therefore indicates that customer identity and demand are at least somewhat recognizable (Von Hippel, 1978). This reasoning can be expressed in three logically derived hypothesizes:

- Hypothesis 7: Opportunities of external origin are associated with technical uncertainty.
- Hypothesis 8: Opportunities of internal origin are associated with market uncertainty.
- Hypothesis 9: Opportunities of internal origin are larger than opportunities of external origin.

2.4 **Summary, Research Model and Some Comments**

Generally, my impression is that parts of the strategy literature overemphasize threat as the driver of corporate entrepreneurship, while parts of the entrepreneurship literature overemphasize opportunity. The discussion in this chapter provide for an investigation of venture motives in more detail, as well as of the consequences of venture selection.

Four groups of constructs have been outlined above, each corresponding to one of the research questions. The constructs are related to different parts of the venture process:

- One group refers to the motives for corporate entrepreneurship, with an ambition to verify the extent of influence from strategic and non-strategic issues, and how they lead to choices among business development alternatives.
- There is also a set of constructs that refer to characteristics of the venture, such as business development direction and opportunity size and origin.
- In addition, there is a discussion regarding exploitation difficulties (i.e. uncertainty), and venture outcome, as well as the links between them.

The illustration below summarizes the different constructs and their hypothesized relationships in a tentative path diagram (Hair, Anderson, Tatham & Black, 1998). The stated formal hypotheses are derived from these relationships. The path diagram’s structure represents the study’s research model. It includes the aforementioned construct, but some additional clarifications may be required:

- Opportunity origin can only vary between two extremes: Internal and external. Therefore, one construct is enough for including its variation in the structural model. This, however, is not the case with uncertainty and development direction. Both these phenomena can vary both in type and extent, and one variable can only capture one variation. In essence, using a single construct for development would involve choosing to measure either the direction of development (product vs. market) or the amount of development (large vs. small). This is undesirable, as it makes it impossible to separate very different situations, when it comes to the impact on the endogenous variables investigated. The situation with uncertainty is similar. Two operational constructs are therefore needed for each of these phenomena.
- While previous investigations were useful in the development of tentative instruments for measuring most constructs, see next chapter, there was no instrument available for the study of new venture motives and opportunity size. The research of motives’ impact on the characteristics of new ventures will therefore start with an exploratory investigation, where the first step is to search for a factor, or a set of factors, that represents motives. (Such factors could, in forthcoming research, be inserted in a similar research model, if appropriate hypotheses can be formed).
At the current stage of this research, however, motives have unknown relationships with the other constructs. See illustration below.

![Tentative Path Diagram of Hypothesized Causal Relationship.](image)

**Figure 10:** Tentative Path Diagram of Hypothesized Causal Relationship.

The model above guided the design of this research project. It will reappear in different forms throughout the text, in order to make it easier for the reader to follow the steps made during the investigation. In the analysis chapter, each section will start with an illustration, based on figure 10, that highlights the parts of the model about to be examined. In chapter 6 it will be used, again in other forms, for summarizing the obtained results. Before proceeding into these parts, however, it is appropriate to present and clarify the methods that were used.
3 Methodological Considerations

The first research question refers to the identification of venture motives. The second research question is about the link between motives and ventures, and the third research question is about the link between ventures and their outcome. Investigating the links between phenomena within a population – in a way that focuses on the patterns of the constructs and their relationships, rather than the patterns of actions taken by individual firms – requires the collection of data for a number of representative cases. While it may be possible to learn interesting things from studying a small number of cases in-depth, such an approach has very limited possibilities for systematic measuring of attributes and their relationships, which is important for drawing warranted conclusions about links between phenomena. Quantitative methods have better tools for evaluating and testing the type of research questions that are studied in this project. In addition, there are powerful qualitative tools for explorative investigations that should be useful for dealing with RQ1 and RQ2.

For this study, the suitable unit of analysis is the individual venture, since all three research questions refer to venture-level phenomena. Motives can be argued to be a firm-level attribute, because it is the firm (or rather some influential individuals in the firm) that has motives, not the ventures. However, it is more suitable to work with the venture, as the level of analysis, as it allows for different ventures at the same firm to be associated with different motives.

Answering these questions systematically thus requires a venture-level cross-sectional investigation, an approach that has been uncommon so far in the study of corporate entrepreneurship. Quantitative research also potentially allows for generalization. Although, in practice, generalizations are usually only valid to a limited extent, due to the

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32 Previous examples include: Samuelsson’s (2004) and Dahlqvist’s (2007) studies, which both include start-ups as well as corporate ventures; a survey on obstacles in 63 business development attempts that includes joint ventures and acquisitions (MacMillan et al., 1986); Eric von Hippel’s (1977) study of 18 ventures and how their characteristics correlate to success and failure; the study of venture champions in 136 internal ventures conducted by Diana Day (1994); Biggadike’s study of 68 ventures started by 35 Fortune 200 companies; and Sorrentino & Williams’ (1995) study of relatedness and outcome in 88 ventures. The results of some of these studies are summarized in Block & MacMillan (1993).
limitations in research design and sample used in each study. Section 5.6 and appendix 6 give information useful for judging the limits of generalizability of this study.

This chapter presents important aspects of the research design, the operationalizations of the constructs and categories outlined in the previous chapter, and the development and testing of data gathering instruments.

3.1 **Overview of the Research Design**

Data was collected using surveys sent to randomly selected firms with 10 to 250 employees in certain industries (see below). The survey was self-administered and had both online and offline response options, since giving the respondents this choice facilitates higher response rates (Werner, 2005). Online responses also have the advantage of requiring relatively less manual work from the researchers.

Given that the study concerns top managers’ motives for selecting the venture, it seemed appropriate to make the CEO the target respondent. CEOs are easy to identify, have knowledge about the firms’ strategic situation and, considering what Faber (1999) revealed about top management involvement in SME:s, should have relevant insights into venture selection. Moreover, tests of reliability of performance data has shown that the data obtained from single top-manager respondents tend to be strongly congruent with data from other sources, such as competitor’s estimation and archival data (Brush & Vanderwerf, 1992). For these reasons it would seem that the CEO is the best respondent to approach. The data collection started in February 2006, and was finished in July.

The aim was to collect venture-level data from about 300 ventures, in order to get an adequate data set, considering the multivariate methods that were about to be applied (see an overview in section 3.7). Estimating that the firm-level response rate could be about 30%, and that on average 40% of these firms would provide one venture-level response, indicated that 2500 surveys should be sent out. However, fortunately the test run of the survey demonstrated that the venture vs. firm-level response ratio was far higher than expected (see section 3.4 below).

3.1.1 **Population and Sample**

To be included in the population, firms needed to meet a number of requirements additional to size. First, in order to lower the risk of spending time and money on firms that are inactive or do not have business operations in progress it is useful to introduce a business size threshold. The threshold was set to five million SEK\(^{33}\) as a minimum turnover (year 2004), after balancing business practice conventions with feasibility issues. Second, only established firms are of interest because of the project’s limitation to corporate entrepreneurship. Start-ups and very young firms should therefore be excluded, since they are likely to be mainly engaged in setting up the business and pursuing the initial opportunity (Dahlqvist, 2007). For this reason, an age cap was set to 5 years (based on Teach et

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\(^{33}\) Circa €530 000.
Third, in order to capture as much variance as possible from sought phenomena and limit the influence from issues outside the investigation, a geographic limitation was established to avoid influence from differences in country conditions. The study was therefore limited to Swedish firms. Fourth, in order to maximize the chances of gaining a lot of information about the phenomena studied, it seemed useful to focus on selected industries in which much corporate venturing can be expected. Inspired by Choffray & Lilien’s (1984) indications about innovative industries, adapted to Statistics Sweden’s (SCB) industry categories, the following four industries were selected:

1. **Electrics & Optics** (SNI industry code 30-33, category DL) refers to the manufacture of electrical and optical equipment, including computers and information processing equipment, electric motors, generators, transformers, control apparatus, cables, batteries, television, radio, telephony, light bulbs, medical equipment, navigation equipment, optical instruments, and clocks. This part of the population contained 478 firms, after cleaning the firm file from some posts that apparently did not belong in the sample.

2. **Vehicle & Transport** (SNI industry code 34-35, category DM) consists of firms manufacturing all forms of transport equipment. Product categories include motor vehicles, boats, aircrafts, spacecrafts, motorcycles, bicycles and their engines, parts etcetera. This sub sample amounts to 263 firms.

3. **Other Machinery** (SNI industry code 29, category DK) provides the population with 707 firms meeting the requirements for the sample. These firms engage in manufacture of machinery and equipment, such as: Pumps, compressors, gears, agricultural machinery, furnaces, power tools, mining, and construction machinery, as well as engines and turbines (except those for vehicles). It further includes the production of machinery for processing or manufacturing of food, beverage, textile, tobacco, plastic, domestic appliances, weapons, and ammunition.

4. **Other Manufacturing** (SNI industry code 36-37, category DN) includes firms manufacturing products that are not listed in other industries within the SNI system. These firms typically produce furniture, sports goods, musical instruments, games, toys, coins, and jewelry. 289 firms from this category qualified for inclusion in the population. All four industries are sub-sets of the larger category “manufacturing firms”, according to SCB (see appendix 8). Manufacturing has the benefit of including empirical material on both product development and market development, so it appears to be an appropriate base for the sample. A file with basic data on all firms fulfilling these criteria was obtained from SCB. This file included addresses, telephone numbers and some firm characteristics, like business and organizational size in 1999 and 2004, of 1863 firms. However, 126 of these firms were removed from the population during the investigation because they did not fit the criteria. The relevant population was hence 1737 firms.

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34 English translations of Swedish Standard Industrial Classification (SNI) codes are taken from SCB (2002).
(As described further below in this chapter, and in appendix 6, the main obtained data set consists of 274 ventures from 222 firms. The firm-level response rate for this sample was 35% returned answers from 675 randomly selected firms. Useful complementary data was collected through phone interviews with top managers in 246 randomly selected firms, see section 3.6 and appendix 6 for details.)

3.2 Operationalizations

When collecting retrospective data from a single respondent for each empirical case, there is a risk that inaccurate information is added to the data set without it being noticed. A way of improving data validity and minimizing measurement errors is the use of multiple items per construct (Huber & Powers, 1985). In addition, one should use a clear and structured design and avoid loaded questions and ambiguous phrasing, in order to protect against bias caused by the phrasing of survey items (e.g. Churchill, 1995). The formulation of the questions was therefore done in collaboration with other entrepreneurship researchers, and together we tried to make sure that the meaning was clear and unambiguous, while maintaining a neutral tone. The questionnaire was then subject to pre-testing in several steps as an extra precaution against these problems, as will be described below (Huber & Powers, 1985).

Operationalization of most constructs was facilitated by available operationalizations in previous studies. Other operationalizations had to be completely or partly constructed for this particular study. In the tables that follow, constructed questions are indicated with inspired by… or created by author as comments in the source column.

Questions were developed, or fine-tuned, based on theoretical and practical concerns. Comments are provided when appropriate. Most questions involve giving judgment on statements on an interval scale. Brown et al. (2001), a study that was among the most important for aiding the operationalization, uses a 10-point scale, which (among other benefits) reduces the problems with middle-value bias. This scale is also coherent with recommendations from the ECSI (1998) regarding measurement of non-financial variables. The scale was therefore adopted for this study, and the questions within each construct were consequently given a 1 to 10 range of answer alternatives. Consistent use of one scale, to the degree possible, made the questionnaire more consistent and comprehensible for the respondent. The questions were designed according to the two following styles:

1. Judging agreement to one statement (disagree-agree).
2. Judgment through a trade-off between two statements (X vs. Y).

Trade-offs between two statements involve a forced choice situation. This approach has been criticized and requires more effort from the respondents than one-statement questions. In light of this, I minimized the use of this technique when possible. The scales of some items were reversed, in an attempt to mitigate instrument bias and allow for evaluation of response consistency, if that would be needed.
Operationalizations of the main constructs follow below. See the complete Swedish questionnaire in appendix 1, and the English translation in appendix 2, for further details. In addition to these questions, and some background questions about the firm and the respondents, the questionnaire also included several constructs additional to those that resulted from the theory chapter above (see appendix 5). This was partly caused by the need to gather data to related research, and because the research questions were only preliminarily defined at the time. Some of these constructs were useful as controls in models used in sections 4.3 and 4.4 in the Analysis and Result chapter.

The following subsections are an overview of the operationalizations of the venture-level constructs included in the research model. Working from left to right in the research model (figure 10), the constructs were operationalized as follows:

### 3.2.1 Venture Motive Constructs

Research on corporate entrepreneurship confirms the importance of strategy as one of the determinants of business development behavior (e.g. Faber 1999, Zahra, 1991). A motive instrument, based on the tentative motive categories in the preceding chapter, was therefore developed. The use of previous studies was particularly difficult in this part of the study, because:

- Firm-level strategy literature provided some inspiration, but was not directly applicable in small firm research and therefore required some adaptation (Davig, 1986; Shuman & Seeger, 1986).

- Established firm-level entrepreneurship instruments (Brown et al., 2001; Covin & Slevin, 1986) could be used to generate some questionnaire items, but these questions required some adaptation in order to work at the new venture level.

- Other constructs could build on instruments from earlier product development and marketing studies (e.g. Cooper, 1985; Dwyer & Mellor, 1993), but the parts that regarded strategy and motives were seldom usable for the current study.

Consequently, in order to enable measurement of the different motives dimensions, the range of questions below had to be constructed from bits and pieces of previous studies. Moreover, several of the useful studies were firm-level investigations, so most items had to be adapted to fit inquiry about ventures, as specified below.

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35 All items in table 2 are consequently constructed by the researcher (in collaboration with colleagues), and then tested and examined for validity and reliability (as described in section 3.3 and 3.4). An alternative approach is to ground questions empirically on a pre-study, based, for instance, on deep interviews with relevant respondents. Both these approaches have advantages and disadvantages. The approach chosen was nevertheless the only feasible way given the project’s time constraints.

36 E.g. ideas regarding offensive and defensive strategies have appeared in previous research (Dwyer & Mellor, 1993; Cooper, 1985; Lumpkin & Dess, 1997). In the entrepreneurship field, several items of the strategic posture construct are analogous to elements of entrepreneurial management (Brown, 1998; Brown et al., 2001), which concerns such attitudes influencing strategic behavior.
Due to the exploratory nature of this part of the investigation, I also added a control question (mot_9), where respondents could indicate the relevance of the items for the motive dimensions. The resulting items are presented below.

**Table 2: Two-statement Motive Questions.**

<table>
<thead>
<tr>
<th>Label</th>
<th>Motive (X vs. Y)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Orientation: Growth VS competition:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mot_2</td>
<td>We needed to reinforce our position. VS. We needed to strengthen our revenue streams. (^{37}) (reversed scale)</td>
<td>Same as above, but with different wording.</td>
</tr>
<tr>
<td><strong>Adaptive style: Proactive VS Reactive items</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mot_3</td>
<td>We needed to take action in anticipation of future situation VS. We needed to adjust to circumstances at hand. (^{37}) (reversed scale)</td>
<td>Created by author.</td>
</tr>
<tr>
<td>mot_4</td>
<td>We wanted to take the initiative and force competitors or customers to react. VS. We needed to respond to competitors’ or customers’ initiative. (^{37}) (reversed scale)</td>
<td>Brown et al. (2001). Adjusted to fit new venture level. “Customers” added as a result of test respondent feedback.</td>
</tr>
<tr>
<td><strong>Posture: Offensive VS Defensive</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mot_5</td>
<td>We wanted to go ahead and secure an opportunity VS. We wanted to preserve/protect long-term economic healthiness. (^{37}) (reversed scale)</td>
<td>Inspired by Brown et al. (2001).</td>
</tr>
<tr>
<td>mot_6</td>
<td>We tried to avoid confrontation with competitors. There is “room-for-everybody”. VS. We wanted to confront and defeat competitors.</td>
<td>Adopted from: “Typically seeks to avoid competitive clashes, preferring a ‘live-and-let-live’ posture” VS. “typically adopts a very competitive ‘undo-the-competitors’ posture” (Brown et al., 2001).</td>
</tr>
<tr>
<td>mot_7</td>
<td>We had a cautious “wait-and-see” posture in order to minimize the risk of making costly decisions. VS. We had a bold and aggressive attitude to maximize the possibilities to exploit promising [“business” is presupposed] opportunities.</td>
<td>Adopted from: “Typically adopts a cautious, ‘wait-and-see’ posture in order to minimize the probability of making costly decisions” VS. “Typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities” (Brown et al., 2001).</td>
</tr>
</tbody>
</table>

The rest of the motive questions have only one statement each (see below).

\(^{37}\) The phrasing of these items was changed after a test run of the survey (see section 3.4 and table 13). E.g. The later version of mot_1 and mot_2 measured the extent of growth and competition efforts separately, to allow for more precision in findings.
Table 3: One-statement Motive Questions.

<table>
<thead>
<tr>
<th>Label</th>
<th>Various questions (disagree-agree)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>mot_8</td>
<td>An important reason to put time and resources in the venture was that we wanted to develop com-</td>
<td>Inspired by Normann (1977), Johnson &amp; Scholes (1997), and Thorén &amp; Brown</td>
</tr>
<tr>
<td></td>
<td>petences that appeared important in the long run</td>
<td>(forthcoming).</td>
</tr>
<tr>
<td>mot_9</td>
<td>Most of the important reasons for the new venture are included in the questions above.</td>
<td>Created by author.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Can be used to verify the questions and assess the relevance of busi-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ness/strategy related motives.</td>
</tr>
<tr>
<td>mot_10</td>
<td>The venture was largely a way to utilize excess resources.</td>
<td>Inspired by Ardichvili et al. (2003) and Penrose (1955).</td>
</tr>
<tr>
<td>mot_11</td>
<td>Personal, or non-business, reasons played an important role in our decision to start.</td>
<td>Inspired by Davidsson (1991) and others, see section 2.2.1.</td>
</tr>
</tbody>
</table>

3.2.2 Venture Characteristics Constructs

The next four sets of questions concern the characteristics of the venture itself, including the direction and extent of business development required, as well as opportunity characteristics, such as size and origin. Again, previously constructed instruments were used when possible and adapted when needed – in some cases for straightening out unnecessarily long or complex phrasing.

Questions regarding opportunity size refer to how respondents perceived the value creation potential of the venture. The measurement of opportunity size is conducted by asking for subjective statements, since a “large” opportunity for a small firm might be perceived as insignificant by a large firm. Comparison items were added (oscomp_1 to oscomp_3) asking for (firm-level) business size indicators, in case that information would be needed when interpreting the findings.
### Table 4: One-statement Venture Characteristics Questions.

<table>
<thead>
<tr>
<th>Label</th>
<th>Characteristics questions (disagree-agree)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Business development direction: Market</strong></td>
<td></td>
</tr>
<tr>
<td>mdev_1</td>
<td>The venture targeted customers far outside our earlier customer groups.</td>
<td>Adapted from: “Many of our new products have to be sold to people or organizations outside our company’s traditional customer base” (Chen et al 2005).</td>
</tr>
<tr>
<td>mdev_2</td>
<td>We had earlier products that provided the same type of value or targeted the same need. (reversed scale)</td>
<td>Inspired by Ansoff (1956), Johnson &amp; Scholes (1997), Roberts &amp; Berry (1985), Roberts &amp; Meyer (1991) and Sathe (2003).</td>
</tr>
<tr>
<td></td>
<td><strong>Business development direction: Product</strong></td>
<td></td>
</tr>
<tr>
<td>pdev_1</td>
<td>This venture involved new ways of making money from one of our current products. (reversed scale)</td>
<td>See above.</td>
</tr>
<tr>
<td>pdev_2</td>
<td>The pursuit required substantial work with product development.</td>
<td>See above.</td>
</tr>
<tr>
<td></td>
<td><strong>Opportunity characteristic: Size</strong></td>
<td></td>
</tr>
<tr>
<td>opsize_1</td>
<td>When we took the decision, we hoped that the venture would have a very large impact on turnover.</td>
<td>Created by author.</td>
</tr>
<tr>
<td>opsize_2</td>
<td>When taking the decision, we hoped that the venture would have a very large impact on profit.</td>
<td>Created by author.</td>
</tr>
<tr>
<td>opsize_3</td>
<td>When we took the decision, we hoped that the venture would have a very large impact on market share.</td>
<td>Created by author.</td>
</tr>
<tr>
<td></td>
<td><strong>Size (open range)</strong></td>
<td></td>
</tr>
<tr>
<td>opsize_4</td>
<td>We expected that the market would grow with ___ % per year.</td>
<td>Created by author.</td>
</tr>
<tr>
<td></td>
<td><strong>Comparison items for opportunity size (open)</strong></td>
<td></td>
</tr>
<tr>
<td>oscomp_1</td>
<td>The venture started year _____________.</td>
<td>Created by author.</td>
</tr>
<tr>
<td>oscomp_2</td>
<td>The turnover that year was __________ kr.</td>
<td>Created by author.</td>
</tr>
<tr>
<td>oscomp_3</td>
<td>The profit/loss that year was __________ kr.</td>
<td>Created by author.</td>
</tr>
</tbody>
</table>

Venture characteristics also include the origin of the opportunity. The items constructed for opportunity origin were of X vs. Y type, as illustrated below. Note: To improve structure for the respondent, these questions were therefore grouped together with the X vs. Y questions of the motive constructs in the questionnaire, see appendix 2.
### Table 5: Two-statement Venture Characteristics Questions.

<table>
<thead>
<tr>
<th>Label</th>
<th>Characteristics questions (X vs. Y)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>oorg_1</td>
<td>The venture was market-driven. VS. The venture was technology-driven</td>
<td>Teach et al. (1989). I excluded “strictly”, used in the original formulation, because of the risk of bias from such wording.(^{38})</td>
</tr>
<tr>
<td>oorg_2</td>
<td>Internal conditions and/or knowledge made us think about the opportunity. VS. Things in the external environment made us think about the opportunity (e.g. competitors, customer needs, political change). (reversed scale)</td>
<td>Inspired by Drucker (1985) and DeWitt &amp; Meyer (2004).</td>
</tr>
</tbody>
</table>

#### 3.2.3 Venture-level Uncertainty and Outcome Constructs

Uncertainty items were borrowed from marketing and product development literature, and adapted to this study. They build on the assumption that uncertainty depends on a lack of familiarity. For market uncertainty, unfamiliarity was broken down into three items that appear exhaustive and mutually exclusive, i.e. uncertainty about who the customers are, what they want, and how they can be reached (Jaworski & Kohli, 1993). This allows for capturing the uncertainty faced by practitioners during the business concept development and value chain development efforts (c.f. section 2.3.1). In addition, three market turbulence items were included, in order to capture sources of unpredictability regarding competition and user needs (Atuahene-Gima & Murray, 2004; Chen et al, 2005; Jarowski & Kohli, 1993; Souder, Sherman & Davies-Cooper, 1998; Yap & Souder, 1994).

\(^{38}\) A survey study of opportunity recognition in the software industry market versus technology factor included three significant items. In addition, the item “the business idea was strictly market driven” was an important variable, but the loading for that particular sample was not high enough to warrant inclusion in that factor (Teach et al, 1989: 387). That item is nevertheless included here with some adaptation.
Table 6: Operationalization of Market Uncertainty.

<table>
<thead>
<tr>
<th>Label</th>
<th>Market uncertainty (disagree-agree)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>munc_1</td>
<td>We knew who the target customers were. $^{37}$ (reversed scale)</td>
<td>&quot;How new was the target market to our company?&quot; (Tatikonda &amp; Montoya-Weiss, 2001). “Target customer well defined” (Jaworski &amp; Kohli, 1993).</td>
</tr>
<tr>
<td>munc_2</td>
<td>We were initially very unfamiliar with the customer need the venture aimed to fulfill.</td>
<td>Based on Jaworski &amp; Kohli (1993).</td>
</tr>
<tr>
<td>munc_3</td>
<td>The venture required distribution channels that were unfamiliar to us.</td>
<td>Based on Chen et al. (2005) and Jaworski &amp; Kohli (1993).</td>
</tr>
<tr>
<td>munc_4</td>
<td>We felt that customer preferences changed all the time.</td>
<td>Chen et al. (2005).</td>
</tr>
<tr>
<td>munc_5</td>
<td>Our customers tend to look for new products constantly.</td>
<td>Chen et al. (2005).</td>
</tr>
<tr>
<td>munc_6</td>
<td>The actions of competitors, in the new area, were uncertain and/or unpredictable.</td>
<td>Jaworski &amp; Kohli (1993) and also Atuahene-Gima &amp; Murray (2004).</td>
</tr>
</tbody>
</table>

In addition to these items, the questionnaire includes a comparison item:

Table 7: Comparison Item, Market Uncertainty.

<table>
<thead>
<tr>
<th>Label</th>
<th>Market uncertainty (disagree-agree)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>munc_7</td>
<td>It was difficult to estimate the price customers would be willing to pay.</td>
<td>Created by author.</td>
</tr>
</tbody>
</table>

This last item acts as a reference, in case the operationalization needs to be evaluated, since it captures a likely practical effect of market uncertainty.

Technological unfamiliarity was operationalized as five items that include both process technology novelty (i.e. unfamiliarity with the required manufacturing stages in the value chain) and product technology novelty, as suggested in Tatikonda & Montoya-Weiss (2001). Moreover, product technology novelty was divided into novelty on the module/component level and novelty on the configuration level, based on the notions of architecture and modularity presented by Henderson & Clark (1990).
Table 8: Operationalization of Technical Uncertainty.

<table>
<thead>
<tr>
<th>Label</th>
<th>Technical uncertainty (disagree-agree)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical unfamiliarity items:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>tunc_1</code></td>
<td>The components in the product were new to us.</td>
<td>“How new, on average, were the product modules?” (Tatikonda &amp; Montoya-Weiss, 2001).</td>
</tr>
<tr>
<td><code>tunc_2</code></td>
<td>The component configuration of the product was new to us.</td>
<td>“How new were product configurations?” (Tatikonda &amp; Montoya-Weiss, 2001).</td>
</tr>
<tr>
<td><code>tunc_3</code></td>
<td>Overall, the technologies required for this venture was largely familiar. (reversed scale)</td>
<td>“Overall, how new were the technologies required to develop this product (R&amp;D)” (Chen et al., 2005; Tatikonda &amp; Montoya-Weiss, 2001).</td>
</tr>
<tr>
<td><code>tunc_4</code></td>
<td>The manufacturing stages were new to us. (reversed scale)</td>
<td>“How new, on average, were individual manufacturing stages?” (Tatikonda &amp; Montoya-Weiss, 2001), and “The manufacturing process was new to us.” (Chen et al., 2005).</td>
</tr>
<tr>
<td><code>tunc_5</code></td>
<td>The process required for manufacturing was familiar. (reversed scale)</td>
<td>“The manufacturing process used in this product was totally new to our company” (Chen et al., 2005), and “Overall, how new were the manufacturing technologies to be employed in this project?” (Tatikonda &amp; Montoya-Weiss, 2001).</td>
</tr>
<tr>
<td><strong>Technical turbulence items:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><code>tunc_6</code></td>
<td>The technology included in the product was rapidly changing.</td>
<td>“The technology required to develop this product was rapidly changing” (Chen et al., 2005).</td>
</tr>
<tr>
<td><code>tunc_7</code></td>
<td>The technology in the venture’s industry is rapidly changing.</td>
<td>“The technology in our industry is rapidly changing” (Chen et al., 2005) and Bahve (1994).</td>
</tr>
</tbody>
</table>

In addition to these items, the questionnaire includes a comparison item:

---

39 These items were dropped after a test run of the survey (see section 3.4).

40 Some instruments narrowly targeted environmental rather than task uncertainty (under technology) and included dynamism but not familiarity (Atuahene-Gima & Murray, 2004; Song, Xie & Benedetto, 2001; Song & Parry, 1993).
Table 9: Comparison Item, Technical Uncertainty.

<table>
<thead>
<tr>
<th>Label</th>
<th>Technical uncertainty (disagree-agree)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>tunc_8</td>
<td>The venture’s costs were easy to predict. (reversed scale).</td>
<td>Created by author.</td>
</tr>
</tbody>
</table>

This last item acts as a reference for evaluation of the operationalization, because it captures an important area where the effects of technical uncertainty can be expected to become manifest.

Outcome

Outcome can be measured in at least two different ways. First, a common approach in firm-level entrepreneurship studies of start-ups is to pay attention to differences between firms that survive and firms that are closed down (Brush & Vanderwerf, 1992). When firms disappear from a market it is usually perceived as an indicator of failure, although this has been argued to be a blunt measure because there are many possible reasons for firms to leave the market (e.g. mergers, reestablishments, retirement etc.). The corresponding venture-level measure would be that the venture is terminated. The survival/termination measure may seem more appropriate at the venture level than at the firm level, assuming that firms do not normally terminate very successful ventures. However, the measure is still just a proxy for the outcome construct, since other reasons, like political issues or ownership changes, may also be a cause for the termination of ventures.

Second, outcome can be measured as venture results on a scale. It appears that results need to be measured in several different ways, in order to thoroughly evaluate a venture’s outcome: A combination of best-case performance, actual performance, and performance compared to expectations would be preferable. For feasibility reasons, results are only measured performance compared to expectations. This appears, as argued in section 2.3.2, to be the most appropriate way to acquire useful data with a limited set of questions, since it recognizes the subjective nature of result judgments (Brush & Vanderwerf, 1992). The successful use of this approach in product development studies hints that it should be useful for this study as well, given the similarity in retrospective collection of data, and the partial overlap of phenomena and processes studied (e.g. Cooper & Kleinschmidt, 1987; Yap & Souder, 1994). The result items, in turn, were borrowed from a construct that has been applied in several product development studies. It was originally developed by Cooper & Kleinschmidt (1987) and has been used in several subsequent studies (e.g. Chen et al., 2005). The items have been adapted from Chen et al. (2005) to suit business development ventures more generally.

The results are difficult to measure fairly, since the ventures are undertaken by different firms, under different circumstances, and have different characteristics. However, even though both ways of measuring outcome have limitation, the inclusion of multiple measures makes it possible to compare the subjective perceptions of results, with the more objective survival/termination measure (Brush & Vanderwerf, 1992). Collectively, the measures should therefore give a useful foundation for proper evaluation.
Table 10: Venture Outcome Constructs.

<table>
<thead>
<tr>
<th>Label</th>
<th>&quot;Compared to our initial expectations...&quot;</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Items:</strong></td>
<td></td>
</tr>
<tr>
<td>res_1</td>
<td>Overall sales exceeded expectations.</td>
<td>Adopted from Chen et al. (2005). “meet or exceed” changed to “exceed”, to avoid ambigious wording.</td>
</tr>
<tr>
<td>res_2</td>
<td>Profit exceeded expectations.</td>
<td>See above.</td>
</tr>
<tr>
<td>res_3</td>
<td>The project exceeded return on investment.</td>
<td>See above.</td>
</tr>
<tr>
<td>res_4</td>
<td>The venture exceeded management’s expectations in general.</td>
<td>See above.</td>
</tr>
<tr>
<td>res_5</td>
<td>We took more market share than expected.</td>
<td>See above.</td>
</tr>
<tr>
<td>res_6</td>
<td>Launch was possible earlier than expected.</td>
<td>See above.</td>
</tr>
</tbody>
</table>

The survival/termination measure of outcome can be captured by asking for venture status. However, it is also interesting to know how far the venture has proceeded in its process, because this enables sorting and analysis of differences between ventures at different stages. Even though respondents are instructed to report only ventures that have proceeded so far that they can evaluate them, it can, in some situations be relevant to only consider cases that are completed (or in late stages) to ensure sample correspondence. A question that asks for venture status was therefore added, having four answer alternatives in an ordinal scale. Since this question is a control question, as well as an outcome question, it is presented among “other questions” below (see table 11).

### 3.2.4 Other Questions

Another issue that is important for certifying that the ventures belong in the sample is that they are corporate entrepreneurship ventures and not initial ventures, i.e. start-ups. For this reason, a control question was added, in which the respondent state whether the venture in questions is the first venture, that is, the one the firm was established through.

Moreover, an issue that might have impact on venture outcome is the firm’s experience with business development activities (MacMillan et al., 1986). In order to control for the potential influence of experience when investigating the link between opportunity characteristics, venture difficulties, and outcome, a question about venture experience was included in the questionnaire. All questions in table 11 below were constructed by the author.
Research Method

Table 11: Other Questions.

<table>
<thead>
<tr>
<th>Label</th>
<th>Items:</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>vstatus</td>
<td>How far has the venture proceeded?</td>
<td>Nominal scale: terminated – just started – still in progress – completed and integrated in overall business activities.</td>
</tr>
<tr>
<td>vfirst</td>
<td>This was our very first venture, i.e. the one the firm was established upon.</td>
<td>Dummy: yes – no.</td>
</tr>
<tr>
<td>vexp</td>
<td>This was one of our first attempts at business development.</td>
<td>10-point scale: disagree-agree</td>
</tr>
</tbody>
</table>

3.3 Instrument Development

Two instruments were developed for the survey: A paper questionnaire and an online version of the same questionnaire. The first draft questionnaire was constructed in October 2005. It contained the questions above, as well as some additional firm-level questions that enter the study as control variables (see sections 4.3, 4.4, and appendix 5).

3.3.1 Translation, Questionnaire Design and Face Validity

The draft questions were translated into Swedish by the researcher and a colleague. Once the questions were translated, a native English-speaking but also Swedish-speaking researcher read these translations as a confirmation of correctness.

After screening and formatting the questions, a questionnaire was constructed containing two parts:

- Part 1 was the firm-level questions that are not within the main focus of this study. The constructs included environmental characteristics, resource acquisition self-efficacy (RASE), and entrepreneurial management. This part also contained background questions about the firm and the respondent.
- Part 2 contained the venture-level questions that provide the main data set for this study.

When this first version was finished it was answered by a group of five researchers, with experience from quantitative research acting as test-respondents (referred to in the text as academic test respondents, ATR). A number of minor wording changes were then made. The layout and the ordering of the questions were adjusted, in order to improve the general impression and readability. These ATRs generally gave positive signals regarding the face validity of the questionnaire, from a theoretical and methodological point of view.

After these changes, six practitioners (i.e. entrepreneurs and/or SME top managers, referred to in this text as entrepreneur test respondents, ETR), answered the survey. Their

---

41 The translation of some of the motive questions drew upon a previous data-gathering round in Sweden made by Brown et al. (2002).
feedback helped to ensure the relevance and correct understanding of the questions. These tests led to a number of minor wording changes, particularly in part 1 of the survey. Moreover, the ordering was changed so that the easier questions were given before the more difficult ones, in order to facilitate better response rates (Dillman, 2000). The ETRs could answer the circa 100 questions (part 1 plus one venture) in slightly less than 20 minutes. There were (surprisingly) no complaints regarding the number of questions, in fact one ETR argued that the amount was “suitable”. Further, the feedback led to further clarification and improved visibility of instructions, especially those for part 2. The ETRs confirmed that the incentives (a report of the study and an invitation to a seminar at KTH about business development in SME:s) were relevant, and suggested that they should be advertised early and clearly, both in the cover letter and in the survey itself.

An experienced researcher (expert on communication, question formulation, and data gathering), as well as a professional language expert (readability-oriented writing, as well as English-Swedish-English translation), made a final screening of the instrument. The translator suggested some minor changes and could then confirm that the Swedish translations of the questions were accurate.

When the appropriate changes had been made, an updated paper questionnaire was designed, which had several venture-level question sets, thus allowing for responses about up to three ventures. The design of this questionnaire was conducted in parallel with the development of an online instrument (see appendix 7).

### 3.3.2 Survey Design

The survey design involved a number of efforts made to increase the response rate of the survey. These efforts were, to a large degree, inspired by suggestions from Dillman (2000). Some of the main tactics are described in the following paragraphs. The main objective is to establish trust and provide rewards to the respondents. Rewards include incitements, but can also be of social and intellectual nature.

**Cover Letter**

Generally, the cover letter emphasized the importance of the project, and the incentives for participating, while maintaining a positive tone. In addition, wording was tailored so that the topic of the study would sound relevant and interesting for the respondent. It was kept at a one-page length, with the text as concise and understandable as possible.

The cover letter asks for the respondent’s help and expertise, which gives some people a sense of reward through the satisfaction of being able to help someone else solve a problem (Dillman, 2000). Respondents were also informed that other CEOs had already completed the survey. Knowing that other people, similar to oneself, have already performed a requested activity can be very positive for the willingness to participate. Most people see themselves as belonging to certain groups, and tend to take actions that are coherent with the values and behaviors of others in the group, due to a pressure for social validation (Dillman, 2000).
To gain trust and credibility, the cover letter and questionnaire were clearly linked to a well-known organization, the Royal Institute of Technology (KTH), through the text and color-printed logotypes. A high-level person, the Dean and Director for the School of Industrial Engineering and Management (at KTH), Professor Bengt Lindberg, agreed to sign the cover letter together with the author, indicating the project’s importance and seriousness. Personal signatures are a strong indicator of the effort put into the contact with the respondent, possibly improving their willingness to participate by making them feel special. In this case the signatures were printed, but in a way that was quite realistic.

**Instructions**
Clear and concise instructions make survey participation easier. In the cover letter, respondents were instructed to provide data about any type of business development venture pursued through the firm’s own efforts, while excluding joint ventures and acquisitions. They were also informed that the project required information about successful as well as failed ventures, and everything in between. Additional instructions were provided in the questionnaire. Before entering part 2, the respondent was instructed that data should only be provided about ventures that had progressed so far that he or she could evaluate them. The questionnaire also included information about the investigation, and some instructions about how to answer the questions.

**Questionnaire**
When it comes to questionnaires, Dillman (2000) recommends that they should be interesting and easy to complete. One should also avoid subordinating language and phrasing that may stir embarrassment or inconvenience. The design strived to comply with these suggestions. For ease of use, the questionnaire should be short and have a clear vertical flow, as well as carefully organized questions. This was done to the extent possible, given the tight space limitations (12 pages for about 200 questions).

Dillman (2000) further recommends the booklet format and use of high-quality paper. This was achieved by contracting a print shop at the campus. The print shop delivered stylish printing, with the KTH logotype in color on the front page of the booklet. To enhance the impression that the respondent’s information is important, there was space on the last page where the respondent could provide his or her own comments.

**Incitements**
The incitements were limited due to resource constraints. Respondents were offered the possibility to obtain a report with the results of the investigation, which supposedly is interesting as a benchmark for the firm’s own position and business development efforts. In addition, the respondents were invited to participate in a seminar on business development at KTH, arranged by the author and colleagues. (It was assumed that they would be at least as interested in networking and meeting each other, as in the investigation and its results.)
Research Method

Sending the Survey
Respondents were offered the possibility to answer the survey anonymously. There were therefore no tracking numbers or visible markings on the envelope or its contents. To minimize inconvenience, the sending included a prepaid return envelope, and a link to the online version of the questionnaire. The researcher’s name did not appear on the return envelope, in order to enhance the impression of professionalism, and the association with the organization as the sender, rather than the person (Dillman, 2000).

Another method for increasing response rate is personalization. The most practical places for personalization in this survey were in the address field of envelopes and reminders, and in the cover letter. This technique was used to a varying extent in the different sending batches during the test survey, as will be explained later.

Reminders
Two reminders were mailed to the respondents. These were color-printed postcards with the KTH logotype on one side and a short text on the other. The use of post cards is cheaper than sending a new batch of complete questionnaires, but also helps directing respondents to the online questionnaire to the highest extent possible. The first postcard accentuated the incentives, in order to create a positive pressure for helping with the research. The second postcard was more of a plead for help, that emphasized the importance of the firm’s participation due to its uniqueness and unreplaceability, a tactic that was not used in the preceding communication.

3.4 Instrument Testing
With all the pre-testing complete it was time to assess the construct validity of the test instrument and the effectiveness of the tailored survey design (Dillman, 2000), in terms of response rate. A survey package was sent to 298 SME:s via regular mail in early February of 2006, so that a dataset usable for testing could be collected. To select the firms, a number of sheets with address stickers were randomly drawn from the pile of all such sheets. Each sheet had addresses to a maximum of sixteen firms, in alphabetic order based on the firms’ name. Some firms had several addresses (e.g. several local offices), but in these cases the survey package was sent only to one of the addresses.

The 15th of February, 281 reminders were sent, that reached respondents on the 16th. Unfortunately, our local IT department decided to block the IP-address of the web server during the night between the 15th and 16th, making online responses impossible for a few days. Since they also failed to notify anybody about closing down the connection the problem remained unnoticced and was not solved until noon on the 17th. It was impossible to estimate how many responses were lost because of this, but it was especially serious because of the choice to send reminders as postcards with the URL instead of resending the complete paper survey. On Friday the 17th and Monday the 20th I received seven paper survey responses. Two of these responses included comments about the closed web site.
The following week, another 271 postcards were sent as reminder number two. These were reinforced by an additional plead for help printed manually on the cards with reference to the web problems. Seven responses were received during the days following reminder two. This was not higher than expected, so the effectiveness of the additional plead for help could not be confirmed.

The test run of the survey generated answers from 62 firms, amounting to a 20.8 % firm-level response rate. These firms reported 72 venture cases which is 116% of the number of firm-level responses. About 74% of the responses were traceable, i.e. respondents voluntarily gave up their anonymity and reported the name of the firm. An invisible marking on the paper surveys, indicating if its cover letter named the individual respondent (e.g. “dear John Johnson”), enabled an estimation of the effect of personalization. Based on an investigation of the traceable paper answers, the personalized cover letter appeared to have a response rate approximately twice that of a non-personalized cover letter. Almost half of the respondents, 48.4%, indicated an interest in the incitements.

3.4.1 Non-response Analysis for the Test Survey

To get insight into possible improvements and non-response bias problems, a few days were spent calling CEOs of 34 firms, from which no response was recorded. The absence of a recorded response implies that the firm either did not respond or that they responded anonymously. Four questions were asked:

- Did you get the survey?
- Did you answer it?
- Do you have any opinions or feedback regarding design, communication and content?
- Will you try to answer the survey (if they had not already done so)?

I was unable to reach a respondent in seven of the 34 firms, because they were out of office or busy. Of the remainder, eight respondents said that they already answered it, in which case their data would be recorded among the anonymous responses. The number of confirmed non-responses thus amounted to nineteen. The following categories of reasons for non-response emerged from the interviews.

- Seven (36.8%) of the non-respondents said that they never got the survey (but two of these said they would try to answer it if I could send it again, which I did).
- Eight (42.1%) of the non-respondents said that they received the survey, but that they did not have time to answer it.
  - Three of these non-respondents said they would make another attempt to answer the survey.
  - Another three of these non-respondents said that they never answer surveys.
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- One of these non-respondents thought the survey was too complicated and decided not to answer it.
- Another respondent did not answer because his firm is not doing any manufacturing, which made it ineligible for the sample.

When it comes to feedback from these respondents, they generally emphasized that survey researchers should avoid including too many questions. However, all respondents that mentioned this were among those who claimed that they had responded to the survey.

3.4.2 Assessment of Constructs and Questions

The questions were analyzed with test survey data, in order to identify possible problems and removable items. This evaluation did not focus on assessing the data's qualities, or whether there was support for tentative models and hypotheses. Instead, time was spent primarily on assessing the distributions and correlations of the resulting answers, to see if they indicated problems with the question formulation, and if questions were superfluous. The evaluation of the instrument relied on histograms for each question and factor analysis of the multi-item constructs\(^\text{42}\) (Podsakoff & Organ, 1986). The adjustments made to the instrument are summarized in table 13.

Motives

The main new venture motive variables generated a three-factor solution explaining 65.5% of the variance. However, loadings were not as expected. The rotated solution is presented below.

<table>
<thead>
<tr>
<th>Table 12: Venture Motive Factors in the Test Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.png" alt="Table" /></td>
</tr>
</tbody>
</table>


Even though the research of motives is exploratory, the emergence of a strong divergence from expected results may be an indicator of instrument problems. The fact that mot_5 is grouped together with the responsiveness items can be related to the wording of the question. The Swedish translation of “go ahead” was closer to “hurry ahead”, which may have led respondents to associate it with time, rather than with competitive attitude. The

\(^{42}\) Factor analysis was done with principal component extraction and factors with an eigenvalue over 1 are included in the tables. The amount of missing data was low and missing values were handled through mean value imputation.
question was therefore rephrased. mot_3, mot_4 (adaptive style) and mot_5 (posture) suffered from distributions that were far from normal, according to histogram inspections. Several changes were made to improve clarity and reduce cross-item similarities.

The two orientation questions (mot_1 and mot_2) did not load on the same factor. In fact, there was virtually no correlation between these two items, even though they were meant to measure the same thing. It appears that respondents do not associate the word “position” with competitive rivalry at all. mot_2 was therefore rephrased with a less ambiguous wording. Moreover, several (academic) test respondents, and some of my advisors, argued that the design of the two objective questions is problematic because respondents can have difficulties answering questions that force them to make a trade-off between statements that are not opposite. This could potentially lead to problems with the data. Although no such problems were indicated by this evaluation, I decided to change the design accordingly nonetheless, as the initial version made it impossible to separate ventures with a strong orientation toward both money and competition, from ventures with weak orientation in both areas.

Uncertainty

The venture-level uncertainty items grouped on five factors that explained 62.6% of the variance. tunc_4 (production process unfamiliarity) seemed to be a problematic indicator as it loaded on all but one factor. Since there were plenty of other indicators on technical novelty, as well as one specifically addressing manufacturing issues, I decided to drop this question for the sake of shortening the questionnaire. Moreover, tunc_3 (product technology unfamiliarity) had a similar loading pattern, and was consequently dropped as well. Given that several indicators for these constructs still remained, the removal of these problematic questions for the sake of achieving better response rates was motivated.

When it comes to the market uncertainty construct, the first item, munc_1 (familiarity with target customers), did not behave as expected. Instead it loaded on a different factor than the other market unfamiliarity items. The histogram revealed that respondents generally entered a high score on this question, suggesting that they usually knew fairly well who the target customers were. The question was rephrased, making the statement stronger, with the hope that it would increase the variance during the next data collection round. Furthermore, “target customers” was also changed to “customer group” due to the risk of bias from respondents instinctively answering “yes” when asked if they know their target customers. (These changes had some effect: the mean increased by approximately 1.0 in the final data collection round.)

Business Development Direction, Outcome, and Opportunity Size

The remaining operationalizations were analyzed as well. The outcome of the factor analysis was a single factor, with acceptable loadings from all items. The histograms indicated no problems, so no change seemed necessary. Similar results were obtained for the outcome and the business development direction constructs.

However, two items in the outcome construct, outc_2 (profit) and outc_3 (ROI) were strongly correlated (0.88). I therefore decided to remove one of these items for the sake...
of decreasing respondent efforts. outc_2 seemed to be the most superfluous item in the operationalization; its removal had a smaller effect on the level of explained variance than the removal of outc_3. (The variance explained decreased from 67.98 % to 65.99%).

Table 13: Summary of Changes in the Instrument.

<table>
<thead>
<tr>
<th>Label</th>
<th>Original phrasing</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>mot_1</td>
<td>A wish to increase revenues VS. a desire to improve competitive strength.</td>
<td>Redesign of trade off; the sought variable VS: “other” priorities, instead of trade off between two variables in the same question.</td>
</tr>
<tr>
<td>mot_2</td>
<td>We needed to reinforce our position. VS. We needed to strengthen our revenue streams.</td>
<td>Clarification. Redesign of trade off; the sought variable VS: “other” priorities, instead of trade off between two variables in the same question.</td>
</tr>
<tr>
<td>mot_3</td>
<td>We needed to take action in anticipation of future situation VS. We needed to adjust to circumstances at hand.</td>
<td>Using “conditions” instead of “situation” gives a clearer formulation.</td>
</tr>
<tr>
<td>mot_4</td>
<td>We wanted to take the initiative and force competitors or customers react. VS. We needed to respond to competitors’ or customers’ initiative.</td>
<td>Using “force” involves a greater risk for offensive connotation than “let”, so changing wording may reduce the risk of unintended cross-item correlation.</td>
</tr>
<tr>
<td>mot_5</td>
<td>We wanted to go ahead and secure an opportunity VS. We wanted to preserve/protect long-term economic healthiness.</td>
<td>New translation of “go ahead”. mot_5; “win opportunity” may involve a lesser risk of a defensive connotation than “secure” opportunity, so this change may clarify the scale.</td>
</tr>
<tr>
<td>tunc_3</td>
<td>Overall, the technologies required for this venture was largely familiar to the firm.</td>
<td>Dropped.</td>
</tr>
<tr>
<td>tunc_4</td>
<td>The manufacturing stages were new to us.</td>
<td>Dropped.</td>
</tr>
<tr>
<td>munc_1</td>
<td>We knew who the target customers were.</td>
<td>“target customers” changed to “customer group”.</td>
</tr>
<tr>
<td>outc_2</td>
<td>Profit exceeded expectations.</td>
<td>Dropped.</td>
</tr>
</tbody>
</table>

In total five questions were removed from the survey. All questions included in the final survey are exhibited in appendix 2.⁴³

---

⁴³ Evaluation of firm-level constructs (see appendix 2 for the questions):

- The results from the EM constructs revealed a few problems, but collectively the EM items converged to a six-factor solution explaining 69% of the variance. No changes were made to these items.
- The RASE items were summarized to a RASE strength measure (Brown, 1996). This measure had a nice bell-shaped distribution in the histogram. A few respondents had added “parent firm” as a source in the open alternative so this was included in the final questionnaire as a separate category.
- The environment questions formed three factors explaining 64.15 % of the variance. Two of the hostility items formed a factor together with the munificence items. This is not very controversial, as respondents might very well perceive the questions as referring to similar aspects of their environment. dynamism variable 1 (dyn_1) ended up with unexpected loadings, forming a factor with hostility variable 2
3.5 **Actions to Increase the Response Rate**

As a result of the test run of the survey I decided to take a number of actions with the goal to increase the response rate for the final run to over 30%. Aside from a number of smaller changes of the design and information in the cover letter and survey instruments, the efforts primarily targeted increasing the portion of surveys that actually reached the respondent. Two main actions were taken: First, I decided to personalize all letters by including the respondent’s name in both the address on the envelope and in the cover letter. Second, I decided to personally telephone respondents beforehand, to inform them about the study and ask them to at least take a look at the survey.

The following months, 304 firms, randomly selected from the population (test-survey recipients were excluded from further contacts), were called. In 277 cases I managed to get in contact with a potential respondent, asking first for the CEO, and, if the CEO was not reachable, for other managers with good insight in business development activities over the last five years. Repeated attempts to reach the CEO were made, if there was no other potential respondent.

213 of the potential respondents agreed to receiving the survey and to taking a look at it, while 64 declined. In addition, personalized survey packages were sent to CEOs of another 462 randomly chosen firms (including thirteen of the 24 firms for which I was unable to get in touch with a respondent on the phone), in order to reach the objective for data set size (i.e. about 300 cases). Consequently, the total amount of surveys sent in this final round was hence 675. Moreover, in this run of the survey, the two post card reminders were supported by two e-mail reminders.

3.6 **Phone Survey**

The phone calls, described above, included a number of questions to the prospective respondent, which provide a complimentary data set. The purpose of the phone survey was threefold: i) to create a reliable benchmark for evaluating data collected with the final survey; ii) to collect contextual data and gain personal insight into how and for which purposes top managers used ventures; and iii) to increase the response rate of the final survey.

Regarding the first purpose, to create a benchmark, phone surveys are particularly useful as they tend to get high response rates when asking managers a limited number of specific questions (Brush & Vanderwerf, 1992). Four questions were asked during the interviews:

(host_2). I was unable to come up with any strong explanation for this outcome, despite investigations of the data and discussions with my advisors. The results for host_2 were poor as well, with weak loadings distributed over all factors. Since the reasons for the problems with these two questions were not apparent to me or to advisors that I conferred with, I could not address them with changes of wording or similar measures. A factor analysis without dyn_1 and host_2 generated a two-factor solution explaining 62.4% of the variance. I decided that this was satisfactory and that the two questions could be dropped.
1. How many market development attempts have been conducted during the last 5 years (2001-2005)?

2. How many product development attempts have been conducted during the last 5 years (2001-2005)? (not counting minor changes or upgrades)

3. How much money was spent on development as a percentage of turnover?

4. What was the increase/decrease of turnover during the period?

The respondents were given some guidance in order to give numbers for questions 1 and 2 that could serve as proxies for the amount of corporate ventures: they were instructed that the study concerned business development activities, that they should count only major development efforts, not minor market extensions or upgrades, and that they should exclude joint ventures, acquisitions, and other ventures pursued by other means than internal development.

In total 304 firms were called, but 23 firms were unreachable (e.g. no answer, number changed etcetera). Of the respondents reached, 35 declined to participate in the phone interview. (However, 13 of these respondents agreed to receive the survey anyway). Willing respondents were thus available in 246 of the reached firms, giving a response rate of 87.5% (see appendix 6 for further details).

In addition to answers to the four questions, other related issues often came out in the open during the conversation, for instance regarding how the firm’s competitive situation had been during the period. A number of respondents were also asked to estimate the distribution of market development attempts into the two categories: i) entry of new markets; and ii) entry of new segments. The results are presented in the descriptive overview of corporate entrepreneurship in Swedish manufacturing firms in appendix 8 and the data set is presented in appendix 6.

### 3.6.1 Non-participation Analysis for the Final Survey

The reasons for declining to participate in the survey ranged from not belonging in the sample to not being able to give information because of short tenure within the firm, as presented in the following table.
Table 14: Reasons Among Phone Interview Respondents for not Participating in the Final Survey.

<table>
<thead>
<tr>
<th>Given reason</th>
<th>Freq</th>
<th>%</th>
<th>% of firms called</th>
<th>% of firms reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not in sample – no manufacturing*</td>
<td>9</td>
<td>25.71%</td>
<td>2.95%</td>
<td>3.20%</td>
</tr>
<tr>
<td>Not in sample – no development**</td>
<td>7</td>
<td>20.00%</td>
<td>2.30%</td>
<td>2.49%</td>
</tr>
<tr>
<td>Lack of time at the moment</td>
<td>7</td>
<td>20.00%</td>
<td>2.30%</td>
<td>2.49%</td>
</tr>
<tr>
<td>Never answers questions</td>
<td>4</td>
<td>11.43%</td>
<td>1.31%</td>
<td>1.42%</td>
</tr>
<tr>
<td>Lack of interest</td>
<td>3</td>
<td>8.57%</td>
<td>0.98%</td>
<td>1.07%</td>
</tr>
<tr>
<td>Lack of relevant contact person (in Sweden)</td>
<td>3</td>
<td>8.57%</td>
<td>0.98%</td>
<td>1.07%</td>
</tr>
<tr>
<td>Unable to help</td>
<td>1</td>
<td>2.86%</td>
<td>0.33%</td>
<td>0.36%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>34</td>
<td>97.1%</td>
<td>11.15%</td>
<td>12.10%</td>
</tr>
</tbody>
</table>

* If it was obvious from the firm name that the firm was not doing manufacturing, the firm was not called at all.
** Among these firms, three were contract manufacturers. Both contract manufacturers and other firms without venture activities were invited to participate in the phone interview and in the final survey. The firms in the table above declined for the stated reason, but other similar firms agreed to participate.

The main observation from table 14 is that the vast majority of unwilling respondents were unsuitable for the study or unable to participate, while only a smaller share of the potential respondents referred to lack of time or interest (which in turn may, or may not, be related to issues included in the investigation. See the bias discussion in section 5.6.2).

3.7 Overview of Analytical Methods

The data collection efforts resulted in three data sets, each described in appendix 6: i) phone interview data; ii) firm-level survey data; and, iii) venture-level survey data. Predominantly, the venture-level data was utilized for answering the four research questions.

However, different analytical tools were suitable for the different analytical steps. This section therefore provides a brief method overview of the analysis undertaken for answering each research question.

3.7.1 RQ1: Motives for Corporate Ventures

An appropriate method for identifying underlying structures in a data set is factor analysis. The structure of underlying relationships among a large number of variables is examined by defining a set of common underlying dimensions (factors). A successful identification and interpretation of factor summarizes the variation in the collected data into a smaller number of concepts than the number of individual variables. For example, the data captured by 20 variables might be represented relatively well by three factors that explain most of the variation. For interpretation and implications it is more practical to work with three concepts than with 20, especially since the three dimensions also demonstrate how the distribution of data is structured in the space spanned by the 20 variables. Factor analysis is therefore useful as a method for data reduction that reveals patterns while the resulting loss of information is relatively low (Churchill, 1995).
Factors are formed to maximize their explanation of the variable set, not to predict a dependent variable. One of the most important indicators for evaluating the result of a factor analysis is therefore the cumulative percentage of explained variance. The factors are defined as principal components in the data, composed by the variables, in accordance to loading scores (similar to how a linear combination of variables defines a vector). Loading scores indicate how well a variable coincides with a factor. Loading scores are therefore the main tool for interpretation of the resulting factors; a critical step of the analysis, where researchers often have to rely on theory, reflection and heuristics. A method for facilitating interpretation is rotation, which rearranges the initial solution to a more easily understandable set of factors, while maintaining the explanatory power of the analysis (Hair et al., 1998).

Factor analysis can be used exploratory or confirmatory. In the confirmatory approach, the purpose is to assess the degree of match between the data and a structure derived from theory. Exploratory factor analysis brings out patterns in collected data, without a priori constraints regarding the variables in each component, or the number of components to be extracted. This appears very suitable for exploring and finding potential structures in the motive data. This section (4.1) hence uses the exploratory approach. Two sets of criteria must nevertheless be taken into consideration before using this method:

- Identifying meaningful factors is possible when groups of variables are interrelated to the extent that they are all representative of a more general concept. The early steps of a factor analysis therefore tend to include two hygiene tests to verify if the method is appropriate for the data set. The tests are Bartlet’s test of sphericity and the Kaiser-Meyer-Olkin’s measure of sampling adequacy (KMO). Common threshold levels for the KMO value is that it should at least be over 0.5 but preferably over 0.6. The Bartlet’s test is a statistical test for non-zero correlations among the variables, and the Chi-square value should be high and significant (Hair et al., 1998).

- Factor analysis is not very sensitive to the distributional characteristics of the data. Nevertheless, the method does require an appropriate data set. Sample size should satisfy two conditions; i) there should preferably be 100 observations or more, and ii) it is recommended to have at least five times as many observations as the number of variables. With too few observations per variable the model runs the risk of becoming overfitted, with the derived factors being sample specific with little generalizability (Hair et al., 1998). With ten motive variables and 274 observations, the current study analysis has a quota of 27.2 cases per variable, which appears reassuring.

Since these criteria could be met, the factor analysis can be completed in three steps: i) factor extraction; ii) factor interpretation; and, iii) testing of reliability of the factor solution. For details, see the corresponding sections in the following chapter.
3.7.2  RQ2: Venture Motives and Venture Characteristics

Linking motives to venture characteristics will be done in multiple steps. First, the constructs need to be captured by variables that are manageable but reliably represents the underlying data. For venture motives, composite variables based on the factor scores will already be available from the preceding analysis described above. For venture characteristics, decisions have to be made about how the data should be represented. Second, the correlations between motive and characteristics constructs will be calculated and interpreted. This gives an overview of how motives and characteristics are related to each other over the whole sample. Third, the correlations over the whole sample give hints about dominating patterns, but do not explain how motives are related to the selection of actual ventures, since these occur only as specific combinations of characteristics. The approach will therefore be to identify common characteristics configurations, or venture types, empirically, so that differences in motives can be associated with the commonly occurring alternatives for venturing. The division of cases into subgroups, based on similarity in their characteristics, will be done by clustering techniques. Fourth, after the clusters are interpreted, the differences in motive variables across clusters will be identified and studied.

Cluster analysis groups cases in a structure that represents the empirical phenomena as captured by the variables. The technique is therefore somewhat similar to factor analysis. But cluster analysis defines groups of objects (in this case ventures), while factor analysis is usually used for grouping variables. Cases are grouped to maximize the between-cluster differences. Clustering is a numerical (in contrast to a statistic) technique, so there are no significance indicators that can be used to evaluate the quality of the solutions. Since the method will always generate clusters, it is up to the researcher to judge which approach to use and the solutions generated. Key choices concern the algorithm for forming the clusters and the number of clusters to be generated. Because hierarchical clustering is suitable only for smaller samples, this investigation uses a non-hierarchical clustering algorithm (Hair et al., 1998). For further details, see corresponding sections in 4.2.

3.7.3  RQ3: Venture Characteristics and Uncertainty

The first steps in answering this research question will be to assess the quality of the data, and to make decisions regarding how to represent each uncertainty construct. For venture characteristics, measures based on the factor scores calculated in section 4.2 are already available at this point of the process. Another approach was chosen for representing the uncertainty data (i.e. calculation of latent variables for these constructs was not based on factors). The second step will be to calculate correlations at both variable and construct levels, in order to get an overview of interaction patterns. Then, in the third step, each relationship (see figure 24) will then be tested by regression, which is the logical choice of method for evaluating individual influences of several variables on some other variable (Hair et al., 1998). The regression models used will be evaluated and updated as needed. Finally, the results will be interpreted and discussed.
Estimates of the regression line parameters will be made by ordinary least squares (OLS), a common method, created by Carl Fredrich Gauss, that minimizes the sum of squared residuals between the regression values and the observed values, thus optimizing the correspondence of the regression equation versus the data (Wooldridge, 2003). OLS are the best linear unbiased estimators for the parameters under the following conditions (referred to as the Gauss-Markov assumptions): linearity in parameters, random sampling, zero conditional mean (of error term), no perfect collinearity, and homoskedasticity. During the analysis, some tests were made to verify if the data suffered from problems regarding these criteria. No signs of such problems emerged.

3.7.4 RQ4: Prediction of Venture Outcome

Because the effects of opportunity characteristics and business development direction occur on two stages, according to the research model in section 2.4, i.e. that of resulting uncertainties and that of venture outcome, it is desirable to use a method that can estimate multiple interrelated effects simultaneously. A method that meets the needs of estimation of multiple dependence relationships, and that has proven its applicability in managerial research, is structural equation modeling (SEM) (Davidsson, 1991; Hair et al., 1998). SEM is suitable for this study as it not only allows for effects to be estimated at different stages, but also has the ability to model constructs that are unobserved concepts measured by sets of indicators as an integrated step in the analysis.

In other words, SEM involves the estimation of both the structural model and the measurement models. Structural models concern the relationship between the model’s constructs (that for example is described by path diagrams). Measurement models, on the other hand, are sub-models in SEM that specify the indicators included in each construct and their respective impact, or loading. This part of the analysis is similar to factor analysis, but a factor is composite of all variables, while a measurement model includes only the variables for the specific construct in question (Hair et al., 1998). In this case, the structural model will be an updated version of the research model in figure 10, which takes into account the implications from the regression analysis in section 4.3.

SEM models can be estimated with most-likelihood methods such as LISREL. However, these methods are sensitive to the distributional characteristics of the data, in particular skewness and divergence from multivariate normality (Chin, 1998; Hair et al., 1998). As will be evident from the examination of data in the next chapter, skewness problems do exist in the venture-level data set, for instance in the market unfamiliarity variables. This study will therefore base the SEM analysis on partial least squares (PLS), which is a more robust algorithm that gives better values overall (Hulland, 1998). Like other multivariate techniques, SEM requires independent observations, random sampling, and linearity of relationships (Hair et al., 1998). Another data consideration concerns sample size. With the use of PLS, a sample size of 100 cases would suffice for the model tested in chapter 4.4 (Chin, 1998).

Next, it is time to take a closer look at the application of these methods and the obtained results.
Research Method
4 ANALYSIS AND RESULTS

This chapter presents the results of the research project and the analysis undertaken for achieving them. The chapter is organized into four main sections, but can also be thought of as having two main parts, with exploration preceding hypothesis testing. The first part identifies venture motives (4.1) and links these motives to venture characteristics, and different groups of typical ventures (4.2). The second part tests hypotheses about uncertainty (4.3), and the hypotheses about outcome (4.4).

The reader may want to read appendix 8, the Descriptive Overview of Corporate Entrepreneurship in Swedish Manufacturing Firms, before this chapter, in order to get better acquainted with the population and the empirical setting.

4.1 RQ1: Motive for Corporate Ventures

This section investigates RQ1 by attempting to uncover patterns in venture motives. Previous research demonstrates that engagement in new ventures may driven by many different motives, indicating a need for a broad approach that allows for contrasting and questioning of the predominance of strategic motives. Departing from the discussion regarding the likeliness that most corporate ventures are deliberate and intentional effort aimed at achieving some sort of objectives, the aim of this section is to find out if there are tendencies in SME:s’ motives for going into corporate entrepreneurship. Knowledge about venture motives is important, since it can help illuminate the link between firm-level strategy and actual business development activities. In addition, using a broad approach of study may also reveal the relative importance of strategic concerns compared to other motives decision makers may have. The figure below highlights the part of the research model addressed by this chapter, which is only the leftmost part that exclusively regards motives.
4.1.1 Data Preparation

The analysis in this section is generated from the venture-level dataset. There are 11 motive variables, but variables mot_1, mot_2, mot_3, mot_4, and mot_5 have reversed scales compared to the other variables. These were therefore recoded (inversed) into new variables to make interpretation easier. To indicate that the variables are recoded, the variable names were changed by adding the suffix “RC”.

Further, it is important to investigate the data for weaknesses or problems (Hair et al., 1998). While factor analysis is fairly robust regarding data quality issues that cause problems in other multivariate analysis (e.g. non-normality and heteroskedasticity), it is still appropriate to investigate the data so that potential problems are identified beforehand. Particularly problematic is the presence of outliers and gaps in the data matrix. In the venture-level data set, all motive variable values are in the allowed range (a value outside the allowed 1-10 range is an outlier indicating coding error), but with some extreme values in proactiveness (mot_3RC), a control variable (mot_9), overcapacity (mot_10), and personal/other motives (mot_11). Histograms for these variables do not indicate problems with unrepresentative outliers (see table 16).

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44 Outliers are cases where the value for a variable, or the combination of values of a variable, places the case far outside the distribution reflected by the other cases in the data set. This leads to two problems. First, the outlier generally influence the analysis much more than the other cases, because it is so far from the expected value (for instance if calculating an average, outliers have a large influence on the result because its value is so different from the other cases). Second, the identification of a case as an outlier might be an indication that the case is not representative of the population, or that something went wrong during data collection or coding.
Gaps in the data matrix, on the other hand, are related to missing value problems. If the extent of missing values is too large it undermines the precision and significance of multivariate analysis results, simply because of the lack of possible correlations. Another problem is that the missing values can cause bias in the captured data, if the gaps are an effect of the data collection process (e.g. instrument bias, or other non-random actions of the respondent). A missing values analysis on the variables in question shows that the extent of missing data is very low; the average amount of missing data per variable is 1.46%, with a maximum of 5% (for the control variable mot_9).

The missing values in the motive variables are not only few, a Little’s missing-completely-at-random (MCAR) test\(^{45}\) shows that they are also highly random, or MCAR, at a significance level of 0.011. MCAR is a desirable quality as it allows for an imputation of values in the gaps in the data matrix, which is preferable over deletion of cases or variables. There are several methods for imputation where mean substitution and regression imputation are among the ones more commonly used (Hair et al., 1998). This analysis for RQ1 uses regression-based imputation because it has the advantage of relying on relationships that already exist in the data as the base for calculating imputed values. The risk of bias from the imputation is minimal, because the missing values are so few that the process’ influence on the distributions is minuscule.

Due to the fact that the imputed data is based on regression they can sometimes take illegal values. After going through the data, three values were truncated, since they were higher than 10. The resulting set of variables and their descriptive statistics are as follows:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>mot_1RC</td>
<td>Competition oriented motive</td>
<td>274</td>
<td>1</td>
<td>10</td>
<td>6.91</td>
<td>2.519</td>
</tr>
<tr>
<td>mot_2RC</td>
<td>Money oriented motive</td>
<td>274</td>
<td>1</td>
<td>10</td>
<td>7.38</td>
<td>2.143</td>
</tr>
<tr>
<td>mot_3RC</td>
<td>Proactiveness/anticipation</td>
<td>274</td>
<td>1</td>
<td>10</td>
<td>6.72</td>
<td>2.353</td>
</tr>
<tr>
<td>mot_4RC</td>
<td>Proactiveness/Initiative</td>
<td>274</td>
<td>1</td>
<td>10</td>
<td>6.49</td>
<td>2.593</td>
</tr>
<tr>
<td>mot_5RC</td>
<td>Offensive/opportunity</td>
<td>274</td>
<td>1</td>
<td>10</td>
<td>6.01</td>
<td>2.804</td>
</tr>
<tr>
<td>mot_6</td>
<td>Confrontation</td>
<td>274</td>
<td>1</td>
<td>10</td>
<td>6.56</td>
<td>2.478</td>
</tr>
<tr>
<td>mot_7</td>
<td>Aggressive over careful</td>
<td>274</td>
<td>1</td>
<td>10</td>
<td>5.92</td>
<td>2.214</td>
</tr>
<tr>
<td>mot_8</td>
<td>Strategic competence develop</td>
<td>274</td>
<td>1</td>
<td>10</td>
<td>6.79</td>
<td>2.636</td>
</tr>
<tr>
<td>mot_9</td>
<td>Relevance of questions above</td>
<td>274</td>
<td>1</td>
<td>10</td>
<td>7.67</td>
<td>2.086</td>
</tr>
<tr>
<td>mot_10</td>
<td>Overcapacity</td>
<td>274</td>
<td>1</td>
<td>10</td>
<td>2.70</td>
<td>2.163</td>
</tr>
<tr>
<td>mot_11</td>
<td>Personal or non business motive</td>
<td>274</td>
<td>1</td>
<td>10</td>
<td>2.96</td>
<td>2.442</td>
</tr>
</tbody>
</table>

Variable mot_9 is a control variable where respondents can indicate that the strategy related motive questions are inappropriate for capturing the antecedents to the venture in question. The other variables are derived from the tentative motive categories in section 2.2.3 as follows:

\(^{45}\) This test makes a comparison of the actual pattern of missing data with what would be expected if the missing data was randomly distributed. Results: Chi-Square = 172.315, DF = 132, Sig. = 0.011.
- Variables mot_1RC, mot_2RC and mot_8 aim at capturing the strategic orientation of the venture.
- mot_3RC and mot_4RC are operationalizations of adaptive style.
- mot_5RC, mot_6 and mot_7 are operationalizations of posture.
- mot_10 and mot_11 are operationalizations of non-strategic motives.

4.1.2 Performing the Analysis

The first step in factor analysis is to decide which variables to include. A factor analysis will always find factors, and it is therefore sensitive to the selection and quality of variables. A rule of thumb is to minimize the number of variables, but avoiding having only one variable per factor. Due to the exploratory nature of the analysis in this section, I will start by including all motive variables.

The next step of a factor analysis is to generate a correlation matrix. This is necessary in order to ensure that the data contains enough correlations for justifying the use of the method. More specifically, there should be a number of correlation scores that are higher than 0.3 (Hair et al., 1998). Among the 10 motive variables there are 6 such correlations, highlighted by ** in table 16 below. (Mot_9, the control question, is not included in the factor analysis as it is used for validity evaluation, not for describing a motive.)
In an exploratory investigation, such as the one in this section, it makes sense to examine the material in many alternative ways. With factor analysis, the main option for variation is to try different sets of variables and see how the results hold up. It further makes sense to start with a factor extraction that includes all variables – this is solution number 1 below. It is also interesting to do an alternative analysis without money oriented motives (mot_2), due to the possibility of the other motives being endogenous. This would be the case if money is always a concern in venture motives, and the other variables merely represent sub-issues in the pursuit of economic intentions. This was done in solution number 4 below. Moreover, it is reasonable to test running the analysis without proactivity/anticipation (mot_3) and competence orientation (mot_8), since they are not
Analysis and Results

included in any pair-wise correlation larger than 0.3. That was done in solution number 3 and 6. It is also important to test what happens if the non-strategic motives captured by mot_10 and mot_11 are excluded, partly because they are conceptually different, but also because of their skewed distributions. This was done when generating solution number 7 and 8.

As for evaluating the quality of the solution there are a number of criteria, additional to the amount of explained variance. The most important ones are:

- The two most important statistical tests for the solution are Bartlet’s test of sphericity and the KMO measure of sampling adequacy, mentioned in section 3.7.

- In a solution, there are sometimes variables that do not load on any factor, or that accounts for a too small part of the variance explained by the factors. A common criteria for significance is that the loading should be higher than $0.4^{46}$. Variables with lower loadings are usually considered insignificant.

- The level of explanation gained from a variable is indicated by the communalities score. In this study a communalities score less than 0.5 is considered low. A solution with low scores on some variables can still be used as long as the factor interpretations take the low communalities scores into account. (However, it can be interesting to re-analyze the data while excluding the problematic variable, for comparison.)

Apart from the abovementioned considerations, it is desirable to keep variables in the solution, in order to avoid ending up with one-variable factors (Hair et al., 1998). Running factor analysis on a number of variable combinations led to the solutions described in table 17. Solution 2 is the best solution in terms of variance explained. It also has some of the highest KMO and Chi-squared scores, and is not affected by problems with communalities. This will therefore be the main solution and choice of variables for interpreting venture motives.

**Table 17: Factor Solutions With Different Variable Sets.**

<table>
<thead>
<tr>
<th>Solution</th>
<th>Variables included</th>
<th>Bartlet Chi$^2$</th>
<th>Bartlet df</th>
<th>KMO</th>
<th>% Var expl</th>
<th>No. of factors</th>
<th>Problem variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>All</td>
<td>364.6*</td>
<td>45</td>
<td>0.613</td>
<td>61.7</td>
<td>4</td>
<td>3: communalities 0.37</td>
</tr>
<tr>
<td>2</td>
<td>All but 3</td>
<td>325.1*</td>
<td>36</td>
<td>0.616</td>
<td>66.6</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>All but 3 &amp; 8</td>
<td>306.1*</td>
<td>28</td>
<td>0.624</td>
<td>61.1</td>
<td>3</td>
<td>10: communalities 0.418</td>
</tr>
<tr>
<td>4</td>
<td>All but 2</td>
<td>256.2*</td>
<td>36</td>
<td>0.579</td>
<td>52.2</td>
<td>3</td>
<td>3: 8: communalities 0.36 &amp; 0.18</td>
</tr>
<tr>
<td>5</td>
<td>All but 2 &amp; 3</td>
<td>230.3*</td>
<td>28</td>
<td>0.585</td>
<td>56.9</td>
<td>3</td>
<td>8: communalities 0.19</td>
</tr>
<tr>
<td>6</td>
<td>All but 2, 3 &amp; 8</td>
<td>226.2*</td>
<td>21</td>
<td>0.587</td>
<td>64.5</td>
<td>3</td>
<td>1: communalities 0.47</td>
</tr>
<tr>
<td>7</td>
<td>All but 10 &amp; 11</td>
<td>234.0*</td>
<td>28</td>
<td>0.561</td>
<td>58.0</td>
<td>3</td>
<td>3: 8: communalities 0.38 &amp; 0.44</td>
</tr>
<tr>
<td>8</td>
<td>All but 3, 10 &amp; 11</td>
<td>196.9*</td>
<td>21</td>
<td>0.537</td>
<td>63.5</td>
<td>3</td>
<td>8: communalities 0.46</td>
</tr>
<tr>
<td>9</td>
<td>All but 5</td>
<td>333.0*</td>
<td>36</td>
<td>0.633</td>
<td>66.0</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Number of factors: only factors with an eigenvalue of 1 or above are included in the solution because a lower eigenvalue indicates that the factor has a smaller explanatory power than the average variable, and thus is of little use for data reduction purposes.

* Significant on the 0.000 level.

$^{46}$ With small samples the loading score criterion for significance must be set at higher levels (Hair et al., 1999).
The 3-factor solutions have the advantage of including more variables per factor, which is desirable for the purpose of data reduction (Hair et al., 1998). However, in the solutions with four factors, competence development separates out into a factor on its own, which makes the other factors clearer and easier to interpret.

Table 18: Variance Explained by Best Factor Analysis Solution

<table>
<thead>
<tr>
<th>Comp.</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
<th>Rotation Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
<td>Cum. %</td>
</tr>
<tr>
<td>3</td>
<td>1.355</td>
<td>15.059</td>
<td>55.406</td>
</tr>
<tr>
<td>5</td>
<td>.793</td>
<td>8.808</td>
<td>75.395</td>
</tr>
<tr>
<td>6</td>
<td>.705</td>
<td>7.830</td>
<td>83.225</td>
</tr>
<tr>
<td>7</td>
<td>.574</td>
<td>6.373</td>
<td>89.597</td>
</tr>
<tr>
<td>8</td>
<td>.497</td>
<td>5.522</td>
<td>95.120</td>
</tr>
<tr>
<td>9</td>
<td>.439</td>
<td>4.880</td>
<td>100.000</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

4.1.3 Interpretation of Factors

One needs to keep in mind that factor analysis technique rests on the assumption that some underlying structure does exist among the variables chosen and the sample used. It is up to the researcher to ensure that the patterns are conceptually valid and appropriate to study with factor analysis (Hair et al., 1998). Interpreting factors means making a judgment about the meaning of the pattern of variable loadings, with regards to the sign and magnitude of each loading. Each factor should then be labeled with a name clearly reflects the judgment made about the factor’s meaning, as an underlying dimension of the phenomena in question. A common approach is to set a limit on the loadings to include in the interpretation; usually researchers consider only loadings above 0.4. For comparability, the same cap is used in this study as well, even though it is slightly conservative for the sample size (Hair et al., 1998: 114).

A challenge in factor analysis is to come up with interpretations that are appropriate, believable and unambiguous. In an attempt to remedy the risk of weak or misleading interpretation, I asked several researchers for their independent interpretations of the factors. Their opinions were then taken into account when finalizing the analysis, resulting in the interpretations and labels summarized below.

When interpreting solution 2, it appears that the initial principal component solution is complex and difficult to interpret. 5 of the 9 variables load on more than one factor, and the only factor that is free from such variables is factor 2, which includes proactivity/initiative (mot_4RC) and offensive/opportunity (mot_5RC).
Table 19: Principal Components, Solution 2.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>mot_11</td>
<td>Personal or non-business</td>
</tr>
<tr>
<td>mot_1RC</td>
<td>Competition</td>
</tr>
<tr>
<td>mot_2RC</td>
<td>Money related motives</td>
</tr>
<tr>
<td>mot_10</td>
<td>Overcapacity</td>
</tr>
<tr>
<td>mot_4RC</td>
<td>Proactiveness/Initiative</td>
</tr>
<tr>
<td>mot_5RC</td>
<td>Offensive/opportunity</td>
</tr>
<tr>
<td>mot_7</td>
<td>Aggressive over careful</td>
</tr>
<tr>
<td>mot_6</td>
<td>Confrontation</td>
</tr>
<tr>
<td>mot_8</td>
<td>Strategic competence development</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

In the solution above, two principal components have loadings from many variables, and six of the variables load onto more than one component (factor). Because of this complex loading pattern it is difficult to understand the solution, and the meaning of the factors remains obscure. There are several methods of rotation of factors and most of them concern recalculating the solution to produce loadings that are close to 1 or 0. Such loadings show more clearly how things belong together and usually come closer to what is called a ‘simple structure’, i.e. when each variable loads on one factor only (Hair et al., 1998). As a result, rotated solutions are usually more interpretable. Table 20 shows the rotated solution obtained by the Varimax technique. Varimax is an orthogonal rotation; it preserves the right angles between the factors. (Alternatively, researchers can use other non-orthogonal rotation techniques, in which case the resulting factors may be correlated.)

Table 20: Rotated Component Matrix, Solution 2.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>mot_11</td>
<td>Personal or non-business</td>
</tr>
<tr>
<td>mot_10</td>
<td>Overcapacity</td>
</tr>
<tr>
<td>mot_1RC</td>
<td>Competition</td>
</tr>
<tr>
<td>mot_7</td>
<td>Aggressive over careful</td>
</tr>
<tr>
<td>mot_6</td>
<td>Confrontation</td>
</tr>
<tr>
<td>mot_4RC</td>
<td>Proactiveness/Initiative</td>
</tr>
<tr>
<td>mot_5RC</td>
<td>Offensive/opportunity</td>
</tr>
<tr>
<td>mot_8</td>
<td>Strategic competence development</td>
</tr>
<tr>
<td>mot_2RC</td>
<td>Money related motives</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 6 iterations.
It is not possible to calculate alpha scores when constructs contain negatively correlated items.
Factor 1

In factor 1, business motive variables (mot_1RC: competition, and mot_2RC: money related motive) are grouped together with the non-strategic variables (mot_10: overcapacity, and mot_11: personal/non-business motives). The sign on the former variables is opposite to the sign on the non-strategic variables. Moreover, the non-strategic motives dominate the factor, i.e. have the highest loading scores. The signs illustrate the factor-internal relationships between variables when forming the factor, in this case implying that intentions regarding economy and competition are negatively related to the non-strategic variables. In other words, a venture with high scores on one non-strategic variables can be expected to have low scores on the two orientation variables in question (which are the most strongly correlated motive variables) and vice versa. The variable with the highest loading refers explicitly to the extent of “business” intentions when selecting the venture.

The grouping of economic and competitive concerns into the same factor indicates that they are overlapping, rather than separate, issues for many ventures in this sample, even though they are conceptually distinct. While the theoretical discussion (chapter 2) and operationalizations allowed for orientation to be directed towards different purposes (improving economy, competitive position, or competences), and the questionnaire was designed to make it easy for respondents to separate these purposes, the result shows that the first two issues were present in most venture decisions.

Figure 12 below shows that there are indeed some ventures where one of these strategic objectives dominates the other. However, most responses end up in the upper right corner with high scores on both questions (remember that answers were recoded to remove the reversed scale formulation of the questions).
Motives, such as fighting competitors and making money by serving customers, concern the interplay between the firm and external parties within, or influencing, a business model (see section 2.1.1). Such motives and can therefore be accordingly referred to as “business reasons” for new business creation (Sathe, 2003: 24). The factor indicates that an important underlying dimension is whether the venture’s purpose regards business or non-business concerns, the latter potentially including personal interests or mere utilization of overcapacity. The label of this factor will therefore be business orientation. None of the other variables (mot_4RC, mot_5RC, mot_6, and mot_7) had a loading on this factor that was near significance.

**Factor 2**

Factor 2 is composed of two variables: Confrontation (mot_6); and aggressive over careful (mot_7). Both these variables were operationalized from strategic posture (see section 2.2.3). Strategic posture refers, in this study, to the extent to which the firm’s act of starting a venture reflects an offensive or defensive move. Interestingly, variable mot_5RC, a trade off between winning an opportunity and securing economic sustainability, did not load on this factor, even though it too was an operationalization of posture, and aimed at capturing the preponderance of defensive versus expansion intentions.

Variable mot_7 had the strongest loading on this factor. It signifies aggressiveness and boldness versus careful awareness and averseness towards risk. Variable mot_6 is designed to capture the extent to which firms’ desire to confront and defeat rivals influence venture selections. While the underlying dimension reflected by this factor apparently does not include the issues in the offensive/opportunity variable (mot_5RC), as was expected, it still appears to largely reflect strategic posture in the way it was conceptualized. The results appear to indicate that the factor reflects the offensive – defensive dimension relatively broadly, and that it, when described as this factor, has an influence in venture decisions that is separate from the other underlying dimensions. The label of this factor will therefore be strategic posture, the same as the name of the tentative motive category. Competition (mot_1RC) had the strongest non-significant loading (0.297) on this factor.

**Factor 3**

Factor 3 includes proactiveness/initiative (mot_4RC), together with, somewhat unexpectedly, the variable offensive/opportunity (mot_5RC). Mot_4RC refers explicitly to taking initiative, and the question asks if the venture was a response to another actor’s initiative or if it was an attempt to take the initiative. From table 16, it is evident that mot_4RC and mot_5RC are significantly correlated (0.346). However, proactiveness/anticipation (mot_3RC), which is not included in solution 2, is also significantly correlated with mot_4RC (0.240), but not with mot_5RC. A review of the wording shows that:

- Mot_3RC focuses on the balance of present and future orientation in the venture decision, aiming primarily at capturing elements of proactiveness among the venture motives.
- The wording of the question behind mot_4RC might have been interpreted as
relating to the action in the current situation (of starting a venture), and to whether it is a response or an initiative. So, while it can be said to concern the situation at hand, it aimed at capturing at least the possible element of reactiveness involved in the venture decision.

- Mot_5RC, on the other hand, concerns the venture decision’s balance between opportunity pursuit and protection of the firm’s economic sustainability.

The histogram for mot_5RC has a distribution with two peaks (see table 16) suggesting that while the two alternatives are conceptually commensurable, most ventures relate to one of the issues more strongly than to the other. The histograms of mot_3RC and mot_4RC have similar, but not as accentuated, two-peak distributions. When the variables’ distributions are combined in scatterplots (see figure 13 below), the plots illustrate the correlation between the variables, but also hints towards X-shaped patterns. As a result, it appears that while most ventures are proactive and opportunity oriented, there are also numerous ventures that are proactive but defensive, reactive and opportunity oriented, and reactive and defensive.

![Figure 13: Scatter Plot mot_3RC and mot_5RC as well as mot_4RC and mot_5RC.](image)

To understand the underlying dimension represented by this factor, two alternative solutions were evaluated as well:

- First, when including all three variables, i.e. solution 1, they all group together on the same factor, indicating that offensive/opportunity (mot_5RC) is more closely related to the underlying dimension it shares with the responsiveness versus proactiveness variables than it is to posture\(^{47}\).

- Second, in solution 9, the exclusion of offensive/opportunity (mot_5RC), which

\(^{47}\) Proactiveness/anticipation (mot_3RC) loading = 0.503 and communalities score = 0.348. Proactiveness/Initiative (mot_4) loading = 0.795. Offensive/opportunity (mot_5RC) loading = 0.697.
did not behave as expected, and the inclusion of proactive/anticipation (mot_3 RC) result in a solution with high scores on variance explained, KMO and Bartlet test (table 17 above). Here, the two variables of the motive category adaptive style do group together alone in one factor as expected (loadings 0.728 and 0.762). Moreover, the communalities score of mot_3 was 0.547, which is acceptable.

The tentative label for this factor is therefore adaptive style, but I acknowledge that empirically this dimension appears somewhat related to opportunity orientation. This pattern is interesting as it relates to central ideas in entrepreneurial orientation and entrepreneurial management\textsuperscript{49} (Brown et al., 2001; Covin & Slevin, 1986). Variable mot_2RC (money related motives) has the strongest non-significant loading (0.245).

Factor 4

This factor includes only competence orientation (mot_8) and money oriented motives (mot_2RC). Mot_8 has the dominant loading, making it appear that the underlying dimension primarily concerns acquisition of competence, as an intention behind venture selection. Competition (mot_1RC) had the third strongest loading (0.333) on this factor, but did not reach the significance criterion\textsuperscript{50}. Even though money oriented motives (and non-significant loading of competition) is included into factor 4, the solution does not group competence orientation with the non-strategic motives into factor 1. It would therefore seem that competence development, or learning, is a separate strategic objective. It does not overlap business orientation, but remains separate from the issue of balance between business and non-business concerns. Actually the opposite loading of mot_2RC suggests that this priority occurs partly in conflict with business objectives\textsuperscript{51}. The tentative label on this factor is competence orientation, reflecting intentions that appear to be separate from business orientation.

4.1.4 Reliability of Factors

\textsuperscript{48} The problems with solution 9, however, is that money oriented motives (mot_2RC) loads on 3 out of 4 factors and that the variance explained is slightly smaller than in solution 2

\textsuperscript{49} The fact that they load on the same underlying dimensions can be interpreted as follows: Rather than being two separate characteristics, venture-level proactiveness is opportunity oriented in the firms studied here.

\textsuperscript{50} Actually, the criteria for significance loading should be even stricter, rather than more relaxed, in the later factors of a solution (Kaiser, 1970).

\textsuperscript{51} It is interesting to compare the patterns generated by solution 2 with those generated by solution 8 and see how the removal of non-strategic motives influences the findings. In solution 8, competition still groups together with money related motives. However, that factor also has a negative loading from variable mot_8 (strategic competence development). This factor hence includes all orientation variables, but suggests that ventures are usually either business or learning orientated. The analysis does not explain whether and why these objectives are difficult to reconcile, but the correlation between variable mot_1RC and mot_8, and between mot_2RC and mot_8, are both negative and significant. One possible explanation is that learning objectives are perceived as associated with lower revenues or higher costs. Another possible explanation is that business orientation indicates a short-term business focus, while learning is related to long-term priorities through capability building. However, the time-frame explanation is not supported by correlation with adaptive style variables, as those correlations are nearly non-existent and insignificant (even though a long-/short-term orientation, reflected in high/low scores on mot_8, would likely be related to proactiveness).
Before discussing the results it is important to verify the homogeneity of the sample with respect to the underlying factor structure. This is done by performing repeated analysis for sub-samples that are potentially different in terms of motive. Similarity of factor solutions obtained on different sub-samples is an indication of robustness in the findings. In this study it appears that industry category and firm size are the most evident variables for dividing up the sample. There is no particular reason to believe that firms in different industries should have the same motive structure, especially since they might face very dissimilar challenges and circumstances (Porter, 1980; see also appendix 8 for additional setting-specific information).

The same arguments can be made about size differences. Organizational size year 2005 was selected as the indicator for dividing up the data in groups. Organizational size is more stable than business size, and it is also an appropriate indicator for an overall size construct (Davidsson & Wiklund, 2000). The cases were therefore distributed into three size classes, based on organizational size. The class ranges were selected to make the distribution as even as possible, in order for each group to have a sufficient number of cases for an appropriate factor analysis. Organizing the data into two groups, based on whether the size was smaller or larger than mean (62.8), would have resulted in a very uneven distribution. (As it happens, however, the mean coincides with one of the size class boundaries.)

Because of the smaller sample size in each strata, the loading scores need to be higher. In table 21 it is set to 0.6 as proposed by Hair et al. (1998).

**Table 21: Factors Analysis on Different Size Strata With Solution 2 Variable Set.**

<table>
<thead>
<tr>
<th>Variables/factors</th>
<th>O_Size &lt; 26</th>
<th>25 &lt; O_Size &lt; 63</th>
<th>O_Size &gt; 62</th>
</tr>
</thead>
<tbody>
<tr>
<td>mot_1RC</td>
<td>.766</td>
<td>-.655</td>
<td>-.623</td>
</tr>
<tr>
<td>mot_2RC</td>
<td>.802</td>
<td>.806</td>
<td>.617</td>
</tr>
<tr>
<td>mot_4RC</td>
<td>.806</td>
<td>.866</td>
<td>.890</td>
</tr>
<tr>
<td>mot_5RC</td>
<td>.698</td>
<td>.774</td>
<td>.786</td>
</tr>
<tr>
<td>mot_6</td>
<td>.721</td>
<td>.686</td>
<td>.942</td>
</tr>
<tr>
<td>mot_7</td>
<td>.653</td>
<td>.742</td>
<td></td>
</tr>
<tr>
<td>mot_8</td>
<td>-.707</td>
<td>.804</td>
<td></td>
</tr>
<tr>
<td>mot_10</td>
<td>-.707</td>
<td>.632</td>
<td></td>
</tr>
<tr>
<td>mot_11</td>
<td>-.624</td>
<td>.829</td>
<td></td>
</tr>
</tbody>
</table>


In each size class, non-strategic motive variables (mot_10 and mot_11) group on the

---

52 However, this requires an inclusion of firm-level data into the analysis. There are several ways to do this. Of priority here is to see how motive data varies among ventures in different industries and different firm sizes. Firm-level data was therefore imported to supplement the venture-level data. In order to keep all the venture cases in the analysis some firm-level data had to be duplicated because some firms provided data on more than one venture. Cases with missing values in categorization variables were excluded from the reliability analysis.
same factor. Similarly, the variables in factor 2 and 3 in solution 2 (mot_4RC and mot_5RC, and mot_6 and mot_7) group in the same way in each stratum. The business orientation variables (mot_1RC, mot_2RC) also group on the same factor. In the largest size group, strategic competence development appears as a separate factor.

The only difference among size strata appears to be that while the non-strategic motive variables group with the business-oriented motive variables most of the time, they group with the posture variables for the smallest firm (the strategic motive variables have non-significant loadings of 0.232 to 0.350 on the first factor here). The level of variance explained by these solutions is 6.3% to 9.8% lower than in solution 2. The similarities in factor characteristics, despite large differences in firm and sample size, nevertheless suggest that the underlying motive structures are largely robust over size groups.

Next, grouping based on the industry variable was done after the correction described in appendix 6. Executing the factor analysis on the industry categories was more difficult, since there were only two categories that had a sample size close to adequate number of cases: Industry 1 (electronics & optics) and industry 3 (machinery). Industry 2 (vehicle & transportation products) and industry 4 (other manufacturing) were far from the 100 observations limit.

**Table 22:** Factors Analysis on Different Industry Strata With Solution 2 Variable Set.

<table>
<thead>
<tr>
<th>Strata</th>
<th>Industry 1</th>
<th>Industry 2</th>
<th>Industry 3</th>
<th>Industry 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. Of cases</td>
<td>80 (loading cap 0.6)</td>
<td>43 (loading cap 0.75)</td>
<td>91 (loading cap 0.5)</td>
</tr>
<tr>
<td>Var./ factors</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>mot_1RC</td>
<td>.759</td>
<td>.839</td>
<td>.855</td>
<td>.769</td>
</tr>
<tr>
<td>mot_2RC</td>
<td>.712</td>
<td>.868</td>
<td>.802</td>
<td>.850</td>
</tr>
<tr>
<td>mot_4RC</td>
<td>.810</td>
<td>-.790</td>
<td>-.702</td>
<td>.932</td>
</tr>
<tr>
<td>mot_5RC</td>
<td>.719</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mot_6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mot_7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mot_8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mot_10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mot_11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


As in the different size strata, mot_6 & mot_7 and mot_4RC & mot_5RC form factors in the same way as in solution 2. Non-strategic motive variables also group together, as in solution 2. (When one of these two variables was missing it has a high but non-significant loading on the same factor as the other variable.) In the solutions where business orientation variables (mot_1RC and mot_2RC) occur, they are in the same factors as the non-strategic motives, just as in solution 2. The behavior of strategic competence development (mot_8) varies. In industry 4 it is included in the same factor as offensive opportunity (mot_5RC, mot_4RC had a loading of 0.455 here), but in industry 3 it forms a factor on its own, as in solution 2.
In conclusion, the solutions generated on subsets of cases based on size and industry differences are largely similar to the solution for the full sample, to the extent verifiable given the limited sub-sample sizes. Pairs of variables group in the same way in the different strata as in solution 2. The only noteworthy difference appears to be that strategic orientation variables form a separate factor in firms of the smallest category, while the non-strategic motives form a factor with the posture variables. In essence, however, the factor configuration in solution 2 above appears reasonably reliable.

4.1.5 Validity of Operationalizations

A downside with survey research is that respondents are limited to the alternatives proposed by the researchers. When researching motives, a misleading pattern may emerge if alternatives are missing, since the variance of collected data will be distributed among the available alternatives, regardless of their relevance and importance. Alternatives that are outside the assumption of strategic motives were therefore included in this study, in order to control for this problem. Three items were used: Two other-reasons type of items (mot_10 and mot_11), and one item indicating the appropriateness of the motive questions. The latter question (mot_9) was placed before the other-reasons alternative, so that the evaluation of the strategic motive items could be done separately (assuming that respondents answer the questions in order).

At this stage, it is therefore possible to evaluate the variables and factors (from solution 2) against the control variable (mot_9). Respondents have generally indicated that the questions (mot_1RC to mot_8) are satisfactory for covering the venture’s motive; the mean score of mot_9 is 7.69, which is the most resounding of all the variables in this section (standard deviation = 2.1). As illustrated by table 23 below, it appears that a high score on mot_9 is associated with high scores on mot_1RC and mot_2RC. In other words, the respondents who indicated that the strategic motive questions covered the reasons well consequently also tended to indicate that the venture in question was relatively business orientated. The few ventures that were associated with non-strategic motives (mot 10 and mot_11) conversely found mot_1RC to mot_8 unsuitable for describing their motives, as expected.
Table 23: Correlations Between the Control Variable, main Variables, and Factors.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Correlation with mot_9</th>
<th>Sig. (2-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>mot_1RC</td>
<td>Competition</td>
<td>0.146*</td>
<td>.016</td>
</tr>
<tr>
<td>mot_2RC</td>
<td>Money related motives</td>
<td>0.126*</td>
<td>.038</td>
</tr>
<tr>
<td>mot_3RC</td>
<td>Proactiveness/anticipation</td>
<td>-0.026</td>
<td>.674</td>
</tr>
<tr>
<td>mot_4RC</td>
<td>Proactiveness/Initiative</td>
<td>-0.013</td>
<td>.832</td>
</tr>
<tr>
<td>mot_5RC</td>
<td>Offensive/opportunity</td>
<td>-0.005</td>
<td>.941</td>
</tr>
<tr>
<td>mot_6</td>
<td>Confrontation</td>
<td>0.069</td>
<td>.254</td>
</tr>
<tr>
<td>mot_7</td>
<td>Aggressive over careful</td>
<td>0.065</td>
<td>.280</td>
</tr>
<tr>
<td>mot_8</td>
<td>Strategic competence development</td>
<td>-0.032</td>
<td>.599</td>
</tr>
<tr>
<td>mot_10</td>
<td>Overcapacity</td>
<td>-0.132*</td>
<td>.029</td>
</tr>
<tr>
<td>mot_11</td>
<td>Personal/non-business</td>
<td>-0.253**</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Business orientation factor</td>
<td>0.227**</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Posture factor</td>
<td>0.052</td>
<td>.395</td>
</tr>
<tr>
<td></td>
<td>Adaptive style factor</td>
<td>-0.010</td>
<td>.868</td>
</tr>
<tr>
<td></td>
<td>Competence orientation factor</td>
<td>-0.029</td>
<td>.627</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level 2-tailed.
* Correlation is significant at the 0.05 level 2-tailed.

4.1.6 Forming Latent Constructs for the Motive Dimensions

In subsequent analytical steps, motives will be represented by latent constructs calculated through the factor scores. The score for business orientation is inverted because the direction of the original factor represented lack of business orientation in its original form (see loading scores). The same operation was done on the competence orientation factor. This operation makes the scores latent constructs coherent with the research model, so that obtained relationship indications are in the same directions as they are modeled and labeled.

The software automatically calculates factor scores with a mean of 0 and a standard deviation of 1, making standardization of variables unnecessary.

Note that, in order to separate the latent constructs for motives (which are empirically generated) from the theoretically grounded constructs that are central in the subsequent sections, I will keep referring to motive dimensions.

4.1.7 Summary of Results

The aim of this section was to answer RQ1, by identifying motives behind venture selection. Solution 2 appears valid and useful for describing venture motives, given the theoretical background (in section 2.2), the relatively easy factor interpretation, and the similarities between solutions generated in different sub samples. This solution confirms that motives are related to strategic issues, and that the variables represent four underlying motive dimensions:
Analysis and Results

- The dominant dimension, in terms of explained variance, concerns the extent of business orientation in the objectives for the venture. The variables loading on this factor were designed to capture the purpose of the venture, in terms of the effect it was intended to have. Business effects were to be captured by the variables regarding competition (mot_1RC) and economy related motives (mot_2), while non-business motives were captured by both the narrow overcapacity variable (mot_10) and the broader personal/non-business variable (mot_11). The grouping of economic and competitive concerns into the same factor indicates that they are overlapping, rather than separate, issues for many ventures in this sample. The possibility of competition being endogenous to economic concerns has already been mentioned, and the findings do not contradict such an interpretation.

- Another dimension is indicated by factor 2. It refers to whether the firm’s attempt to reach the effects through a venture is an offensive or defensive move. The possibility of corporate entrepreneurship for defensive purposes appears to be overlooked in most entrepreneurship research. The histogram for the latent variable calculated for this factor, in figure 14 below, provides reasons for questioning the association between corporate entrepreneurship and offensive strategies: The preponderance towards offensive ventures is not very clear.

- Motive dimension 3 includes variables from two different motive categories. Proactiveness has been proposed to be an important element of entrepreneurial orientation (Covin & Slevin, 1986), while some of the literature appears oblivious to the possibility of reactive entrepreneurship. This study was designed to allow for both extremes of adaptive style, in order to stay open for empirical patterns. The obtained factor includes loading from an opportunity vs. asset protection question, a variable that was intended to reflect offensive and defensive attitudes within the posture category. This tension, captured by mot_5RC, is central in another important instrument for measuring firm-level entrepreneurship, namely entrepreneurial management (Brown et al., 2000). The inclusion of mot_5RC in this factor implies that proactiveness in entrepreneurial activities to a higher degree concerns emerging opportunities than other emergent aspects in the firm’s situation (cf. SWOT). A possible explanation is also that when it comes to the future, firms are paying more attention to opportunity than to other things, at least when selecting ventures.

- The last dimension concerns another motive orientation that might cause firms to launch corporate ventures: Competence acquisition. The dominant influence of mot_8 on this factor makes interpretation easy. However, it is interesting to note that money oriented motives appear to be partly in conflict with competence orientation. The histograms in figure 14 below presents the distribution of this motive in venture selection decisions.
Keep in mind that, when using the latent constructs in subsequent analytic steps, the score for business orientation and competence are inverted compared to the original factor solution, in order to avoid confusion when interpreting their relationships with other constructs. In the new form, high scores indicate a higher orientation towards business and/or competence orientation.

![Histograms of Latent Variables](image)

**Figure 14:** Latent Variables Calculated Through Factor Score and Regression.
Furthermore, the level of explained variance suggests that solution 2 has a high degree of explanatory power. The amount of missing data is both low and MCAR, which means that there should be no hidden effects of gaps in the data, or of the regression values used to fill these gaps. Moreover, similar factors appear with little variation in all size and industry strata, suggesting homogeneity in the sample and robustness of the solution. So, for the ventures included in the dataset, the factor analysis has given some insights into the considerations influencing SMEs’ ventures selection (given the limitations associated with the data and methods). The next step is examining the effects of these motive considerations.


4.2 **RQ2: Venture Motives and Venture Characteristics**

If the motives also influence the direction of the entrepreneurial activity and the choice of opportunity, the starting point for understanding the entrepreneurial process can be moved outside of the process itself, i.e. to the situation in which it is initiated. This involves answering RQ2, by finding out how motives are related to venture selection.

Two issues have an effect on my approach for doing this. First, selection should lead to differences in venture characteristics, making measuring such differences in an appropriate way the first step. Second, since the approach when investigating motives was exploratory, the links between motives and venture characteristics must also be exploratory\(^{53}\), see the following figure.

![Figure 15: Scope of the Second Analysis Section](image)

However, theory provided four venture characteristics constructs that are likely to be considered in the venture selection process, and that could be of importance for venture uncertainty and outcome. This provides a starting point for this section, making exploration in order to find such parameters unnecessary. Two of the constructs: Market development and product development, jointly describe the *direction of business development* attempted by pursuing a venture. Since this study focus on corporate entrepreneurship as a business development strategy, these characteristics are especially important. The other two constructs concern *opportunity characteristics*, i.e. the origin and size of opportunity.

\(^{53}\) Hypotheses could not be formed about, for instance, the effect of different motives on venture choice, because the motives themselves had not been established in section 2.2.
4.2.1 Data Preparation

Before going into the process examining relationships, it is useful to take a look at the data. The scales for question 2 on market development (mdev_2), question 2 on opportunity origin (oorg_2), and question 1 on product development (pdev_1) were reversed in the questionnaire compared to the other questions. The variables were therefore recoded to mdev_2RC, oorg_2RC, and pdev_1RC to facilitate interpretations. The following table describes the data and the missing value analysis.

Table 24: Descriptive Statistics and Missing Value Analysis, Venture Characteristics.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Missing</th>
<th>No. of Extremes(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Count</td>
<td></td>
<td>Percent</td>
<td>Low</td>
</tr>
<tr>
<td>mdev_1</td>
<td>271</td>
<td>4.06</td>
<td>2.976</td>
<td>1 .4</td>
<td>0</td>
</tr>
<tr>
<td>mdev_2RC</td>
<td>272</td>
<td>4.43</td>
<td>3.172</td>
<td>0 .0</td>
<td>0</td>
</tr>
<tr>
<td>pdev_1RC</td>
<td>271</td>
<td>5.53</td>
<td>3.153</td>
<td>1 .4</td>
<td>0</td>
</tr>
<tr>
<td>pdev_2</td>
<td>270</td>
<td>6.64</td>
<td>2.892</td>
<td>2 .7</td>
<td>0</td>
</tr>
<tr>
<td>oorg_1</td>
<td>271</td>
<td>3.98</td>
<td>2.816</td>
<td>1 .4</td>
<td>0</td>
</tr>
<tr>
<td>oorg_2RC</td>
<td>271</td>
<td>4.35</td>
<td>2.670</td>
<td>1 .4</td>
<td>0</td>
</tr>
<tr>
<td>opsize_1</td>
<td>272</td>
<td>7.11</td>
<td>2.176</td>
<td>2 .7</td>
<td>2</td>
</tr>
<tr>
<td>opsize_2</td>
<td>272</td>
<td>7.13</td>
<td>2.130</td>
<td>2 .7</td>
<td>1</td>
</tr>
<tr>
<td>opsize_3</td>
<td>271</td>
<td>6.85</td>
<td>2.158</td>
<td>3 .1</td>
<td>30</td>
</tr>
<tr>
<td>opsize_4CORR</td>
<td>214</td>
<td>9.28</td>
<td>7.723</td>
<td>60 21.1</td>
<td>0</td>
</tr>
</tbody>
</table>

a Number of cases outside the range (Q1 - 1.5*IQR, Q3 + 1.5*IQR).

Little’s MCAR test: Chi-Square = 59.597, DF = 66, Sig. = .698.

The distribution of missing values could not be confirmed as randomly distributed, even with opsize_4CORR excluded. However, since the extent of missing values is minuscule in the remaining variables, it is unlikely that these values would have any important impact on the results. Missing values will therefore be handled by pair-wise exclusion.

4.2.2 Representation of Venture Characteristics

The theoretical discussion (section 2.2) presented four venture attributes that previous research hints may be relatable to motives. These provided the base for operationalizing and measuring relevant venture characteristics. The first two were defined as the constructs: Extent of market development and extent of product development, and refer to the novelty of the new business area, and the distance between the current and the new businesses. They therefore describe the venture’s direction and extent of business development in relation to the current position of the firm, an aspect supposed to be a predominant cause of uncertainty during venture execution (e.g. Cooper, 1983; Roberts & Berry, 1985). The next construct is venture origin, referring to the degree to which the ideas and inspiration for the venture came from internal or external sources. The impor-

54 A boxplot of opportunity size variable 4 (corrected for errors in given values: opsize_4CORR) revealed that there are a multitude of outliers and extreme values. In addition, the extent of missing data in this variable was relatively high and not random. Due to the risks for bias caused by non-random missing data, and the influence of extreme values, opsize_4CORR was dropped from the analysis.
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tance of this characteristic links back to the inside-out – outside-in debate in strategy literature, and to attempts to create opportunity typologies in the entrepreneurship field (Thorén & Brown, forthcoming). Finally, the size of the opportunity appears to be of relevance as it can be expected to have an effect on managers’ desire to pursue the opportunity, but also on the likeliness of success (Sathe, 2003). The following sections discuss each construct and how they will be represented in the subsequent analytical steps.

Characteristic 1, Extent of Market Development
The extent of market development is captured by two items; one referring to the venture’s relationship to the targeted customer groups, the other referring to how new the targeted need is to the venturing firm. The correlation between these items is 0.128 and significant on the 0.05 level. Face validity of these items was confirmed by the ATRs during the instrument development efforts. A factor analysis (with principal component extraction) shows that the items measure a unidimensional single concept, as they group on the same factor (Hattie, 1985). This factor explains 56.4% of the variance in the variables. However, the internal consistency of the operationalization is low, indicated by a Cronbach’s Alpha 0.226, so the items do not measure exactly the same aspect of market development to a high degree. It should, however, be recognized that Cronbach’s Alpha scores generally increase when additional variables are included, and that the purpose here was to measure each characteristic with few variables. Therefore, indicators were selected to measure issues of each construct that are exhaustive but do not have too much overlap. Low values on statistical consistency tests are therefore to be expected. The scatter plot is presented below.

![Scatterplot, Market Development Variables.](image)

**Figure 16:** Scatterplot, Market Development Variables.

Characteristic 2, Extent of Product Development
The extent of product development is also captured by two items, one that concerns the novelty of the product and one that surveys the extent of development efforts needed for
creating the product. The correlation between these two items is 0.181 and significant on the 0.01 level. Confirmatory factor analysis shows that the items unidimensionally measure one construct and test respondents confirm that this construct is product development (face validity). The factor explains 59.1% of the variance captured by the variables. Again, the items do not hold together very strongly, as indicated by a Cronbach's Alpha of 0.306. Instead they measure partly different aspects of product development. The scatterplot is included below.

![Scatterplot, Product Development Variables.](image)

**Figure 17:** Scatterplot, Product Development Variables.

**Characteristic 3, Opportunity Origin**

Opportunity origin is measured by asking whether the inspiration was triggered by internal or external circumstances, and whether the venture was market driven or technology driven. The correlation between the items is 0.236 and significant on the 0.000 level. The variables form a factor together that explains 61.8% of the variance. The Cronbach's Alpha score of 0.382 suggest a higher, but not reassuring, internal consistency of the construct. The following figure illustrates the covariance pattern.
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Characteristic 4, Opportunity Size

Three items for estimating opportunity size remain after excluding opsize_4CORR. These items refer to the potential of the venture in terms of value creation for the firm, and they target the extent to which the venture is expected to influence the firm’s overall sales, profits, and market share. The three items form a unidimensional factor solution that explains 74.0% of the variance. They also form an internally consistent measure for opportunity size with a Cronbach’s alpha score of 0.822. The market share item has the lowest item-to-total correlation (0.557), but it is still above the threshold for qualifying as a useful indicator (Robinson, Shaver & Wrightsman, 1991). In the following illustration, the venture’s expected impact on profit and market share is related to its expected impact on turnover.

How should this data then be utilized for an analysis of venture characteristics? Hair et al. (1998) suggest three approaches for how multiple indicators for a construct could be
combined into a useful variable for subsequent analysis: surrogate variables; summated
scales, and computed factor scores. Only opportunity size meets the reliability criteria for
summarized scales, so that solution is not available for this study. Surrogate variables is a
solution where one variable is selected as representative for each construct and then used
in the analysis. Since the variables in this section are meant to be exclusive rather than
overlapping, they capture different aspects of each construct. The approach to pick one
variable to represent the others hence runs the risk of leading to too narrow and mislead-
ing values. Selecting surrogate variables is therefore in conflict with the thoughts behind
instrument design. Calculating factor scores, on the other hand, has the advantage of rep-
resenting a composite of all variables that load on a dimension that represents a charac-
teristic. This method has the advantage of using as much of the data as possible in a way
that builds on empirics rather than imposed constraints. So while the use of summarized
scores would make sense in a study where each construct is measured with several com-
plementary variables, this study will rely on factor scores for characterizing the ventures,
because of the limitations in internal consistency within the constructs and the general
advantages of the latter approach.

4.2.3 Forming Latent Constructs
A factor analysis of the nine variables generates a 4-factor solution that explains 67.9% of
the variance. KMO and Barlett’s tests show satisfactory values. These values are described
in table 25. The rotated factor solution is presented in table 26.

Table 25: KMO and Bartlett’s test, Venture Characteristics.

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .591 |
| Bartlett’s Test of Sphericity | Approx. Chi-Square | 456.4 |
| | df | 36 |
| | Sig. | .000 |

Table 26: Rotated Component Matrix, Venture Characteristics.

<table>
<thead>
<tr>
<th>Components</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>opsize_1</td>
<td></td>
<td></td>
<td></td>
<td>.899</td>
</tr>
<tr>
<td>opsize_2</td>
<td></td>
<td></td>
<td></td>
<td>.893</td>
</tr>
<tr>
<td>opsize_3</td>
<td></td>
<td></td>
<td></td>
<td>.761</td>
</tr>
<tr>
<td>pdev_1RC</td>
<td></td>
<td></td>
<td>.560</td>
<td></td>
</tr>
<tr>
<td>mdev_1</td>
<td></td>
<td>.668</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mdev_2RC</td>
<td></td>
<td>.708</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pdev_2</td>
<td></td>
<td></td>
<td>.844</td>
<td></td>
</tr>
<tr>
<td>oorg_2RC</td>
<td></td>
<td></td>
<td></td>
<td>.824</td>
</tr>
<tr>
<td>oorg_1</td>
<td></td>
<td></td>
<td>.505</td>
<td>.616</td>
</tr>
</tbody>
</table>

The opportunity size variables form one factor together. But the market development items form a factor with some loading from the variable new product, suggesting that addressing new needs is (in this sample) correlated with the development of the products. The product development factor has some loading from the technical versus market driven opportunity origin item, indicating that technology driven ventures are associated with technical/product development efforts. Factor 4 concerns opportunity origin.\(^{55}\)

When proceeding with the analysis, each characteristic is represented by a latent construct defined by the variables included in the corresponding factor. The actual values for these constructs are calculated through regression based on the factor scores. The software automatically calculates factor scores with a mean of 0 and a standard deviation of 1, making standardization of variables unnecessary.

### 4.2.4 Correlations and Venture Types

With new variables representing venture characteristics being available, the next step is to identify dominating structures in terms of how data is distributed; assuming that all combinations of values on venture characteristics are not evenly distributed in the sample. If there are some configurations of characteristics that are common, and others that are uncommon, it is interesting to group ventures based on their similarity in characteristics, and examine if these groups represent types of ventures that are different in meaningful ways. Such empirically based classification of cases is referred to as a taxonomy (Hair et al., 1998). The most common method for creating a taxonomy is cluster analysis.

However, before moving on to clustering, it is useful to take a look on how the different venture description constructs correlate with the motive dimensions, in the sample.

**Table 27: Correlations, Venture Motive Dimensions and Venture Characteristics.**

<table>
<thead>
<tr>
<th>Motive dimensions / characteristics constructs</th>
<th>opportunity size</th>
<th>market development</th>
<th>product development</th>
<th>opportunity origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business orientation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sig.</td>
<td>.085</td>
<td>-.176**</td>
<td>.009</td>
<td>-.265**</td>
</tr>
<tr>
<td></td>
<td>.166</td>
<td>.004</td>
<td>.884</td>
<td>.000</td>
</tr>
<tr>
<td>Posture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sig.</td>
<td>.093</td>
<td>-.236**</td>
<td>.089</td>
<td>-.067</td>
</tr>
<tr>
<td></td>
<td>.129</td>
<td>.000</td>
<td>.147</td>
<td>.274</td>
</tr>
<tr>
<td>Adaptive style</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sig.</td>
<td>.164**</td>
<td>.100</td>
<td>-.127**</td>
<td>-.017</td>
</tr>
<tr>
<td></td>
<td>.007</td>
<td>.104</td>
<td>.038</td>
<td>.780</td>
</tr>
<tr>
<td>Competence orientation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sig.</td>
<td>.025</td>
<td>.007</td>
<td>.116</td>
<td>.212**</td>
</tr>
<tr>
<td></td>
<td>.681</td>
<td>.904</td>
<td>.058</td>
<td>.001</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

---

\(^{55}\) Some researchers calculate Cronbach’s Alpha scores for obtained factors. This is not really necessary since the factors are empirically obtained, and not theoretical constructs that needs validating. Nevertheless, the scores for the above factors are: factor 1 = 0.822; factor 2 = 0.341; factor 3 = 0.394; factor 4 = 0.387.
Motive dimension 1, business orientation, is primarily (negatively) correlated with internal origin and market development, even though the latter relationship may seem counterintuitive. Motive dimension 2, posture, is also negatively related to market development, suggesting that it is primarily defensive ventures that lead to pursuit of new markets. Motive dimension 3, adaptive style, is correlated with opportunity size, indicating that proactiveness is associated with the pursuit of larger opportunities. Motive dimension 4, learning orientation, is correlated with product development and internal origin, suggesting that the triggers for competence development often concern internal phenomena and that these ventures involve extensive product development.

4.2.5 Cluster Generation

This procedure attempts to identify relatively homogeneous groups of cases based on selected characteristics. Because of the sample size, this study uses non-hierarchical clustering. The decision on number of clusters was based on practical considerations, and the testing of a number of alternative solutions, all with different choices regarding included variables and number of clusters. In general, fewer clusters provide larger between-cluster differences, but more blunt categorizations. The opposite tendency occurs with a large number of clusters. From a practical point of view, more than five clusters can be difficult to handle, because the differences between the groups often become so small that cluster interpretation gets problematic. Too few clusters, on the other hand, provide little help in understanding the patterns in the sample. After repeated testing, it seemed that the four-cluster solutions had cluster centers with enough between-cluster separation for meaningful categorization, and enough groups to be usable as a taxonomy. The solution in table 28 below was generated by clustering including all four characteristics constructs and employing the running-means technique. Missing values were handled by pair-wise exclusion.

Table 28: Cluster Information, all Variables.

<table>
<thead>
<tr>
<th></th>
<th>Cluster Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Opportunity size</td>
<td>.21888</td>
</tr>
<tr>
<td>Technical/product development</td>
<td>.83487</td>
</tr>
<tr>
<td>Opportunity origin</td>
<td>-.65644</td>
</tr>
<tr>
<td>Market development</td>
<td>.76956</td>
</tr>
<tr>
<td>Number of ventures</td>
<td>60</td>
</tr>
</tbody>
</table>

The used technique is sometimes referred to as k-means clustering because the researcher has to determine k: the number of clusters to be formed (Hair et al., 1998).
Running-means is a technique where centers are updated during the process by recalculation after each case assignment. It is used in this study because it takes as much data as possible into account during the categorization process itself.
Analysis and Results

Table 28, continued…

<table>
<thead>
<tr>
<th></th>
<th>Cluster</th>
<th></th>
<th>Error</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Square</td>
<td>df</td>
<td>Mean</td>
<td>Square</td>
</tr>
<tr>
<td>Opportunity size</td>
<td>11.552</td>
<td>.882</td>
<td>3</td>
<td>13.099</td>
<td>.000</td>
</tr>
<tr>
<td>Technical/product development</td>
<td>48.167</td>
<td>.474</td>
<td>3</td>
<td>101.678</td>
<td>.000</td>
</tr>
<tr>
<td>Opportunity origin</td>
<td>42.778</td>
<td>.540</td>
<td>3</td>
<td>79.282</td>
<td>.000</td>
</tr>
<tr>
<td>Market development</td>
<td>46.194</td>
<td>.524</td>
<td>3</td>
<td>88.215</td>
<td>.000</td>
</tr>
</tbody>
</table>

The F tests above should be used for illustration only, because the clusters have been chosen to maximize the differences among cases considering all variables not only the one in each test. The tests should not be interpreted as tests of equality of cluster means.

Base on the ANOVA table above, it can be concluded that opportunity size is the variable that contributes least to defining clusters (lowest F score). Instead, the other three variables seem to be the main source of differentiation between the clusters. Investigating the cluster centers for this 4-variable 4-cluster solution reveals that the dominant variable for similarity within the clusters differs from cluster to cluster. The variation of dominating parameters for grouping within the same analysis impairs coherent comparison and therefore makes it difficult to generate distinct and clear interpretations. Due to this, opportunity size was excluded in the re-run of the clustering process, for the benefit of more intelligible groupings.

Furthermore, the chosen algorithm can (in contrast to hierarchical cluster techniques) handle large numbers of cases, but at the expense of potential sensitivity to the choice of starting point for the clustering. There are several methods for determining initial cluster centers as points to start from (Green, 1978). K-means clustering in SPSS uses a number of well-spaced cases equal to the number of clusters to determine the starting points for the procedure. Even so, k-means clustering with the running-means technique is potentially sensitive to the ordering of cases. Several different solutions, with cases sorted in different orders were therefore generated, in order to verify the stability of a solution. The following illustration shows several solutions, with first ventures picked at roughly evenly distributed intervals in the list of ventures.
The mapping of resulting cluster centers in the illustration above is based on the business development direction variables. Despite different choices of initial cluster centers, the solutions appear rather similar. A representative solution was selected by inspection.

### 4.2.6 Cluster Interpretation

Interpretation of clusters involves profiling and labeling them based on the location of the cluster centers. Data about the chosen solution are presented in table 29. An illustration of cluster variable distributions can be found in figure 21 just under this table.

**Table 29: Cluster Information, Three Variables, Final Clusters.**

<table>
<thead>
<tr>
<th></th>
<th>Cluster Centers</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical/product development</td>
<td>.375</td>
<td>-1.221</td>
<td>.236</td>
<td>.840</td>
<td></td>
</tr>
<tr>
<td>Market development</td>
<td>1.456</td>
<td>-.129</td>
<td>-.344</td>
<td>-.749</td>
<td></td>
</tr>
<tr>
<td>Opportunity origin</td>
<td>.226</td>
<td>.264</td>
<td>-.955</td>
<td>.878</td>
<td></td>
</tr>
<tr>
<td>Number of ventures</td>
<td>54</td>
<td>71</td>
<td>84</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td>Mean distance from center</td>
<td>1.238</td>
<td>1.099</td>
<td>0.998</td>
<td>1.063</td>
<td></td>
</tr>
</tbody>
</table>

**ANOVA**

<table>
<thead>
<tr>
<th></th>
<th>Cluster Centers</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical/product development</td>
<td>55.117</td>
<td>3</td>
<td>.397</td>
<td>272</td>
<td>138.811</td>
</tr>
<tr>
<td>Market development</td>
<td>53.565</td>
<td>3</td>
<td>.421</td>
<td>272</td>
<td>127.361</td>
</tr>
<tr>
<td>Opportunity origin</td>
<td>44.346</td>
<td>3</td>
<td>.544</td>
<td>272</td>
<td>81.511</td>
</tr>
</tbody>
</table>

The F tests should be used for illustration only.
Analysis and Results

**Figure 21:** Cluster Centers, Size Represents the Number of Ventures in Each Cluster.

Centers represent the mean for each variable among ventures in the cluster, and are assumed to represent the characteristics of the typical cluster member. Figure 21 above maps each cluster center according to the business development variables. The size of the bubbles represents the amount of ventures in each cluster.

The centers for cluster 1 and 2 end up in separate quadrants in the 4-fielder created by the business development constructs. The centers of cluster 3 and 4 can be found together in another quadrant, characterized by above average scores on product development and below average scores on market development. While the difference in opportunity origin between clusters 1 and 2 is minor, it is substantial between clusters 3 and 4. The following cluster labels were chosen. (Comments concern differences in characteristics that are significant on the 0.1 level or better, unless otherwise stated).

**Cluster 1, Diversification Ventures**

The center of cluster 1 is above the mean values of both market and product development. Such ventures are considered risky, as they aim at entering an area of business which is new to the firm, both when it comes to the market and the product. Directions of development that take the firm away from its present market and products at the same time are often referred to as *diversification* (Johnson & Scholes, 1997).

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58 This study does not map entrepreneurial activity in enough detail to establish to what extent the cluster is divided into related and unrelated diversification attempts. Nor does it classify diversification as vertical or horizontal integration strategies – a distinction that hinges on whether the venture takes the firm to new areas inside the industry vertical or to areas in other industry verticals (Johnson & Scholes, 1997; Rumelt, 1974). But it is clear that the ventures in cluster 1 are the most pronounced attempts, in the sample, to move outside the current business areas.
Opportunity origin is dominated by firm-internal sources in this cluster, i.e. the value of opportunity origin is above average. Further, it is significantly lower than the value for cluster 4, but higher than the value for cluster 3. There is no significant difference in opportunity origin between cluster 1 and 2. (An inspection of the underlying variables shows that the internal origin item oporg_2RC is close to the sample average, while oporg_1 has a tendency towards technology-driven ventures.)

In conclusion, while the cluster center indicates that the ventures are more market development oriented than product development oriented, the origin of opportunity tends to be internal and technical. An example could be ventures undertaken when the idea for a new product can open access to a new market, if successfully realized. A related observation is that this cluster has the highest average item score on new product (pdev_1RC). But since product development (pdev_2) has a larger impact on the composite variable than product newness does, the center is only the second furthest to the right in figure 21. This cluster also has the highest score on the proactiveness/initiative item (mot_4).

Cluster 2, Limited Market Expansion Ventures
The location of center 2 indicates that some market development occurs in many of these ventures, while the amount of product development is very low. The opportunity origin construct has a similar value as in cluster 1. (Although, in this cluster an item-level inspection shows that internal initiation is combined with a tendency towards market driven ventures).

How do these ventures then constitute business development? There is theory that suggests typical patterns associated with the fields of the business development matrix in figure 8 (see section 2.2.4). While figure 21 above has lines indicating the sample average (equal to 0 because the factor-based latent constructs are standardized) for the two business development directions, these lines are not established and verified as borders for distinguishing categories. They are therefore to be seen as an orientation, rather than criteria, for the interpretation of cluster center locations. This makes the interpretation of less distinct clusters, like cluster 2 and 3, more difficult.

The score for market development is not significantly different from 0. Most likely, a portion of the ventures are hence probably pursuing new markets to a limited extent, while others are doing so to a larger extent. However, consolidation, protection of the current position, and market penetration, are activities that can require development efforts, as markets usually change over time. Firms may therefore have to change and develop somewhat in order to stay in the same position, so to speak (Johnson & Scholes, 1997). Moreover, a market development score of 0 is not the same as no market development – it signifies an average level of market development for the sample. Inspection of the items shows that the new customer item (mdev_1RC) is slightly higher than the sample mean, while the new need (mdev_2) item is slightly lower than the mean. So it appears that while the ventures may refer to attempts to move into new markets or customer groups, the overall score is held down because these attempts use the current products, targeting the same needs in the new markets as in the current customer groups. This cluster will therefore be labeled limited market expansion.
Cluster 3, Market-driven Product Extension Ventures

Cluster 3 is the largest cluster in the sample. Its center is located significantly higher compared to cluster 2 when it comes to product development (0.01 level), but the difference in market development is too small for significance. Consequently, the dominating characteristic of business development direction is product development. Inspection of items reveals that newness of products, pdev_1RC, is close to the sample average for both cluster 3 and 4 (and very high for cluster 1). The horizontal difference in center location would therefore seem to depend on the larger product development efforts in cluster 4. However, given that cluster 4 features larger levels of product development, it might be that cluster 3 concerns modifications or upgrades of current products rather than the creation of brand new solutions.

The most distinguishing characteristic of this cluster is the strong profile of the opportunity origin construct (see figure 22 below). The ventures in the cluster appear drastically market-driven and inspired by the external environment. Both indicators are far below sample average and the differences are significant at the 0.001 level. The cluster is therefore labeled market-driven product extension, where extension signifies that the amount of product development is not as high as in cluster 4.

Cluster 4, Technology-driven Product Development Ventures

Cluster 4 contains the ventures with the largest opportunity size, although the difference from other clusters is not significant. The center of cluster 4 is located to the right and below cluster 3. The differences in product and market development are significant at the 0.000 level. However, the difference in opportunity origin appears enormous in comparison. It is approximately 4.5 times larger than the difference in market development, making it the largest difference between all the clusters contained in one latent construct.

Concerning business development, it is product development that distinguishes this cluster’s center from those of other clusters (cluster 1 and 3 both have higher scores on pdev_1RC, new products, although the difference is small in the latter case). Nevertheless, the overall score for product development separates this cluster center from that of cluster 3, which makes technology-driven product development an appropriate label.

4.2.7 Venture Motives and Venture Characteristics

Below, figure 22 illustrates differences between the clusters along a number of parameters. Among other things, it clearly reveals the huge difference in opportunity origin between cluster 3 and 4. It also suggests that the technology-driven ventures in cluster 4 are perceived as having the largest potential, as was also suggested by previous investigations (Alsos & Kaikkonen, 2004; Block & MacMillan, 1993), but this pattern is not powerful enough for statistical significance. The middle line, representing the value 0, is also the sample mean for each parameter.
The most important implication of figure 22 is that the motives for corporate entrepreneurship vary over the different clusters. This supports the notion that motives influence business development direction and opportunity choice. The remainder of this section will focus on the statistically significant differences in motives (see table 30).

Table 30: Significant Motive (0.1 level) Differences Between Clusters.

<table>
<thead>
<tr>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Cluster 3</th>
<th>Cluster 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business orientation (.07)</td>
<td>Business orientation (.00)</td>
<td>Business orientation (.05)</td>
<td>(Business orientation)*</td>
</tr>
<tr>
<td>Posture (0.28)</td>
<td>Adaptive style (.07)</td>
<td>Adaptive style (.05)</td>
<td>Adaptive style (.03)</td>
</tr>
<tr>
<td>(Competence orientation)</td>
<td>Posture (.01)</td>
<td>Business orientation (.043),</td>
<td>Competence orientation (.007)</td>
</tr>
<tr>
<td></td>
<td>Competence orientation (.05)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Test done with equal variance assumed (variables are standardized).
Significance levels given in parenthesis.
* Competence orientation: cluster 1 vs. 2 sig. 0.168; Business orientation: cluster 1 vs. 4 sig 0.101

As a help for interpreting this figure: Note that the divergence in business orientation between cluster 1 and 2 is significant, but the difference between cluster 1 and 4 is not significant (0.1 level).
Cluster 1, Diversification Ventures

Diversification ventures are significantly more defensive than ventures in the other clusters. They also score highly negative on the business orientation dimension, and both underlying items are below sample average. (The pattern is reinforced by a high score on the underlying personal/non-business item, mot_11. However, the overcapacity indicator mot_10 is not significantly different from the sample average.) While posture and business orientation is not correlated in the overall sample, they are correlated in this cluster with a magnitude of 0.294 at the 0.05 significance level. This suggests that the ventures are defensive and have personal or non-business motives (rather than that the cluster contains 2 subgroups that are either defensive or non-business oriented).

As stated above, diversification is often considered riskier than other directions of development (Roberts & Berry, 1985). However, a defensive posture indicates that the firm strived to avoid risks and expensive mistakes. So, why then venture into this direction? The overall patterns provide a possible explanation. While the typical venture in this group is strongly defensive, it is also proactive and has some orientation towards learning and competence development. Johnson & Scholes (1997) suggest that diversification can be divided into two groups, one that concerns exploitation of current competences and one that concerns the development of new competences:

- By exploiting current competences, firms can either move into adjacent areas of business (Zook, 2004) or try to create innovations that open genuinely new markets (Hamel & Prahalad, 1994). Such ventures diverge from the patterns observed here, as they would be expected to be business, rather than learning, oriented.

- The other group of diversification ventures is when new competences are developed (which may or may not be related to current activities, in terms of markets served and products produced), but they are more unrelated to the firm’s current competences than is the case in the former group (Johnson & Scholes, 1997).

The latter type of diversification may be proactive and pertaining to the immediate economic or competitive position to a smaller degree than other venture. This is coherent with low scores on business orientation, in line with the findings in the previous section (4.1), where short-term business concerns have to stand aside for learning priorities. It is thus possible that the motive for typical ventures in cluster 1 is proactive competence development through diversification, which may take the firm at least partly outside its current competence base.60

60 Rejected explanations: i) It is also plausible that respondents recognize diversification as risky, and therefore engage in it only when pressing personal reasons are present, while business objectives are pursued through other paths of development. However, that would not explain the highly negative score on posture or the element of proactiveness. These variables are not only signifying for the cluster, they are both also correlated to business orientation, suggesting that they have a combined influence on the choice of direction. ii) The availability of underutilized resources is suggested to encourage firms to diversify (Johnson & Scholes, 1997, Penrose, 1955). While this cannot be excluded as a possible factor in some ventures, it does not appear to be a dominant influence because the overcapacity does not have a higher mean in this group than in the rest of the sample.
Cluster 2, Limited Market Expansion

The ventures seeking limited market expansion are typically having the same business orientation as the average venture in the sample. They are also proactive to approximately the same extent as the ventures in cluster 1 (no significant difference), and pursue opportunities that to a similar degree originate within the firm. However, they are (similarly to cluster 3 and 4) more offensive than the typical cluster 1 ventures, scoring close to the sample mean.

Given the modest amount of market development, it can be expected that some of the ventures in this group aim at protecting and building the current position through market penetration, rather than expanding into new markets. A small preponderance towards seeking new customers nevertheless indicates that most of the ventures aim for at least some market extension or development. This development strategy, with concentration on mainline products combined with market extension or penetration, makes sense in industry segments with little or no growth (Johnson & Scholes, 1997).

The neutral (average) levels of business orientation and posture, combined with the low scores on learning orientation (the ventures are not aiming at providing competence development to a great degree compared to the ventures in cluster 1 and 4), make it difficult to find a dominating motive behind these ventures. However, a look into the histograms for the motive dimensions reveals that there are two outliers (from one and the same firm) on the low side for business orientation (see figure 23 below) that may make the business orientation score slightly understated.

![Histogram for Business Orientation, Cluster 2.](image-url)
Removing the two ventures to the left in figure 23 above increases the business orientation mean to 0.092, making it significantly different from the mean of cluster 4, but not from the sample mean. Inspecting the underlying variables reveals that the two business orientation items have means slightly above the sample average, but they have a lower correlation in this cluster than in the sample. It is thus possible that business objectives are more heterogeneous in this group. Moreover, this cluster has the highest average scores on the offensive/opportunity item (mot_5) and the overcapacity item (mot_10).

In summary, it appears that the business orientation of the typical cluster 2 venture is slightly higher than that in two of the other three clusters. They are also somewhat proactive, but neutral in the offensive-defensive dimension. Thereby, these ventures are relatively proactive ventures, both offensive and defensive, driven by economic or competitive intentions.

Cluster 3, Market-driven Product Extension Ventures

The market-driven product extension ventures have the most pronounced business orientation of all groups. They are, however, largely neutral when it comes to posture. Further, while the adaptive style value is largely neutral there is a tendency towards reactivity, suggesting that the typical venture is a response to customer or market initiatives for new or modified solutions. The remarkably clear tendency towards external opportunity origin is coherent with this interpretation.

In line with the findings in chapter 4.1 (analysis of motive) it appears that these highly business oriented ventures are not undertaken for the purpose of competence development to any large degree. (An interesting observation is that these ventures have the highest average on the control question regarding relevance of the strategic motive questions, mot_9.) It is plausible that this cluster includes contract manufacturers, or numerous ventures where products are developed for specific customer orders. In other words, while the developed products appear innovative, they are not developed unless there is an identified and realistic sales opportunity. In summary, it appears that these ventures are business oriented responses to market pull.

Cluster 4, Technology-driven Product Development

The typical venture in cluster 4 is decidedly product development oriented. The orientation for these ventures is similar to that for the diversification ventures in cluster 1. However, instead of being defensive, the posture appears to lean towards the offensive side. Further, they are reactive, which separates them from the proactive initiatives in cluster 1.

Also, while the learning purposes are more pronounced than in venture 1, the difference is not significant. They do, however, have a significantly larger business orientation than the diversification ventures (cluster 1). The notable concern regarding confrontation, combined with some reactivity, make them appear to be responses to developments in the competitive situation.

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61 The extent of reactivity, however, may be somewhat overstated, since this cluster has the highest score on the proactiveness/anticipation item, a variable that was dropped from the factor analysis when creating the motive dimensions scores in chapter 4.1.
When the identification of opportunities for these ventures is grounded with the internal environment, it may reflect attempts to follow or precede the changing needs of customers, in order to maintain external fit (Burgelman, 1983b; Johnson & Scholes, 1997). These ventures seem to be a mobilization of internal technical competences, with a strong orientation towards learning, in order to reactively confront rivals. Research within the PIMS project suggests that product development, both the creation of new products and improvements of quality, is important for maintaining or increasing market share and profitability (Clayton & Carroll, 1995). In the long run, however, it may be necessary to acquire complementary or new competences, as the path-dependent industry development process gradually makes old ways of doing things obsolete (Eliasson, 1996; Schumpeter, 1934). To reactively pursue ventures for the sake of learning, in order to deal with competition, appears to be a behavior expected of market followers trying to catch up (cf. Covin et al., 2000). The proactive engagement in ventures, such as in cluster 1, would, on the other hand, possibly reflect an ambition to grasp or protect a market leader position.

4.2.8 Summary of Results

An important finding of this analysis is the generation of measures useful for distinguishing between ventures, and that different distinct types of ventures are related to different configurations of motives. This confirms that motives do matter for venture selection. General tendencies in the sample concern a negative correlation between business orientation and market development. The same relationship is observed between posture and market development, suggesting that it is primarily defensive ventures that lead to pursuit of new markets. Motive dimension 4 (competence orientation), in turn, appears to be linked to internal phenomena, and to efforts towards product development.

When dividing ventures into clusters based on similarities in their characteristics, some additional nuances appear. For instance, the market-driven product extension ventures (cluster 3) and the limited market expansion ventures (cluster 2) have the strongest business orientation. However, cluster 3 seems to concern responses to the advantageous situation of market pull, while ventures in cluster 2 build more on internal ideas and involve some degree of market development.

Diversification (cluster 1) and technology-driven product development ventures (cluster 4) appear similar to each other when it comes to the development of competences through corporate entrepreneurship. Both clusters include efforts to develop products and competences based on internal ideas. But typical diversification ventures seem more long-term oriented towards learning, and are related to defensive motives. Further, cluster 1 targets new markets, while cluster 4 aims at confronting competitors in the current market.

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62 Figure 37 in chapter 5.2, on page 158 far below, summarizes clusters and motives
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4.3 RQ3: Venture Characteristics and Uncertainty

This chapter aims at answering RQ3, which concerns whether and how venture characteristics influence uncertainty. This links the venture selection to its likely consequences, in particular the perceived levels of technical and market uncertainty. More specifically, the following hypothesis (repeated from chapter 2) will be tested:

Hypothesis 1: Market development is associated with market uncertainty.
Hypothesis 2: Product development is associated with technical uncertainty.
Hypothesis 3: Product development is associated with market uncertainty.
Hypothesis 7: Opportunities of external origin are associated with technical uncertainty.
Hypothesis 8: Opportunities of internal origin are associated with market uncertainty.

The attention has hence moved from the left side of the research model to its central parts (see figure 24 below). Hypothesis 4 to 6, and 9, are to be tested in the next section (4.4) and involve taking the final step of linking selection to consequences as it investigates effects on venture outcome.

Figure 24: Scope of the Third Analysis Section.
4.3.1 Venture Characteristics and Uncertainty

Previous sections have shown that ventures can be characterized by the constructs that describe the direction of business development, and the nature of the opportunity. These characteristics further appear meaningful, as they can be used to divide ventures into groups that have distinct characteristics, and are connected to different configurations of motives. While this in itself is interesting, one of the main reasons for characterizing ventures is to see if identified differences have any bearing on the execution efforts and the likeliness for success.

Previous research indicates that uncertainty is a key element influencing the outcome of a venture. Uncertainty is assumed to be negative for outcome, both in terms of venture results and of the likelihood for survival/termination (see section 2.3). The impact on results is less clear, but since overcoming uncertainty requires information processing efforts, one could expect it to increase the time and costs for execution, which in turn would be negative for performance. Lack of uncertainty is conversely expected to make the exploitation efforts clearer, more predictable, and generally easier for the firm, and will decrease the need for information processing during venture execution.

This section investigates the relationship between venture characteristics and uncertainty, in order for predictions from previous research on corporate entrepreneurship to be measured and verified. The most important proposed sources of uncertainty are the extent of market and product development required for the venture. The influence of these constructs on uncertainty will be measured and compared to other issues of interest through regression.

The effects of opportunity origin have been discussed in the theory chapter (chapter 2), and this section tests whether uncertainty is lower in the area where the opportunity originates.

These main expected relationships are illustrated in figure 24 above. However, opportunity size is proposed to influence venture outcome. Because this influence might be negative from the firm’s point of view, it might be linked to the occurrence of uncertainty. If this is true, excluding opportunity size from the analysis would lead to overstated values for the hypothesized relationships. To avoid such distortion of findings, this characteristic was included as a control variable in the regression runs.

4.3.2 Data Preparation

As in the previous chapters, there will be a brief review of the data before going into further analysis (see tables 31 to 33). The scale for munc_1 and tunc_8 was reversed in the questionnaire, compared to the other questions. These variables were hence recoded to munc_1RC and tunc_8RC. There are some extreme values in three of the variables, but the analysis software enables dealing with outliers during regression analysis in later parts of this section.
Table 31: Missing Value Analysis, Uncertainty Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Missing No. of Extremes</th>
<th>Count</th>
<th>Percent</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>munc_1RC</td>
<td></td>
<td>0</td>
<td>.0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>munc_2</td>
<td></td>
<td>0</td>
<td>.0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>munc_3</td>
<td></td>
<td>0</td>
<td>.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>munc_4</td>
<td></td>
<td>6</td>
<td>2.1</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>munc_5</td>
<td></td>
<td>3</td>
<td>1.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>munc_6</td>
<td></td>
<td>3</td>
<td>1.1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>tunc_1</td>
<td></td>
<td>2</td>
<td>.7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>tunc_2</td>
<td></td>
<td>3</td>
<td>1.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>tunc_4</td>
<td></td>
<td>4</td>
<td>1.4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>tunc_6</td>
<td></td>
<td>6</td>
<td>2.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>tunc_7</td>
<td></td>
<td>4</td>
<td>1.4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>tunc_8RC</td>
<td></td>
<td>4</td>
<td>1.5</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Running a Little's MCAR test rendered a Chi-Square score of 408.342 and a significance level of 0.031, confirming that missing values are distributed completely at random. The missing values were therefore replaced by regression. Again, since the extent of missing values is minuscule, it is unlikely that the replaced values have any important impact on the obtained estimates. The resulting data set had the following characteristics, after truncation of illegal values:

Table 32: Descriptive Statistics, Market Uncertainty Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable name</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>munc_1RC</td>
<td>Unknown customers</td>
<td>1</td>
<td>10</td>
<td>3.17</td>
<td>2.289</td>
</tr>
<tr>
<td>munc_2</td>
<td>Unknown needs</td>
<td>1</td>
<td>10</td>
<td>3.21</td>
<td>2.199</td>
</tr>
<tr>
<td>munc_3</td>
<td>Unknown channels</td>
<td>1</td>
<td>10</td>
<td>4.58</td>
<td>3.018</td>
</tr>
<tr>
<td>munc_4</td>
<td>Changing customer preferences</td>
<td>1</td>
<td>10</td>
<td>3.81</td>
<td>2.317</td>
</tr>
<tr>
<td>munc_5</td>
<td>Customer novelty seeking</td>
<td>1</td>
<td>10</td>
<td>5.01</td>
<td>2.571</td>
</tr>
<tr>
<td>munc_6</td>
<td>Competitor unpredictable</td>
<td>1</td>
<td>10</td>
<td>3.68</td>
<td>2.111</td>
</tr>
<tr>
<td>munc_7</td>
<td>Difficult pricing</td>
<td>1</td>
<td>10</td>
<td>5.65</td>
<td>2.473</td>
</tr>
</tbody>
</table>

munc_7 is a control variable added for comparison and evaluation, based on the logic that a poor understanding of customers and/or needs would make it hard to estimate what the customers may be willing to pay. At a first glance, the indicators suggest that the respondents consider market uncertainty as low, since the mean values tend to be below the middle value of the scales (5.5).
Table 33: Descriptive Statistics, Technical Uncertainty Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable name</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>tunc_1</td>
<td>New components</td>
<td>1</td>
<td>10</td>
<td>4.69</td>
<td>2.949</td>
</tr>
<tr>
<td>tunc_2</td>
<td>New configuration</td>
<td>1</td>
<td>10</td>
<td>5.32</td>
<td>2.951</td>
</tr>
<tr>
<td>tunc_4</td>
<td>New manufacturing process</td>
<td>1</td>
<td>10</td>
<td>4.52</td>
<td>2.804</td>
</tr>
<tr>
<td>tunc_6</td>
<td>Product technology change speed</td>
<td>1</td>
<td>10</td>
<td>4.46</td>
<td>2.667</td>
</tr>
<tr>
<td>tunc_7</td>
<td>Industry technology change speed</td>
<td>1</td>
<td>10</td>
<td>4.05</td>
<td>2.494</td>
</tr>
<tr>
<td>tunc_8RC</td>
<td>Unpredictable costs</td>
<td>1</td>
<td>10</td>
<td>5.92</td>
<td>2.612</td>
</tr>
</tbody>
</table>

The market uncertainty items also have means below the middle values of the scales. tunc_8RC is a control variable added for comparison, based on the logic that if the solution is uncertain (i.e. during business concept development, see section 2.3.1) and/or changing, then it would make estimating its cost beforehand difficult.

4.3.3 Representation of Uncertainty

The relationships investigated in this section concern the constructs that were outlined in the theoretical discussion in chapter 2 and operationalized in chapter 3. Measures for the venture characteristics constructs were formed and evaluated in a previous section (4.2). However, the uncertainty constructs need to be inspected, and an appropriate way of representation has to be selected. Running a factor analysis on the uncertainty items confirms that the operationalization was sound: The variables form four factors that coincide with the ideas of unfamiliarity and turbulence as main dimensions for each uncertainty type. This 4-factor solution explains 65.7% of the variance. KMO and Barlett’s tests generate satisfactory values, which are described in table 34. The rotated factor solution is presented in table 35.

Table 34: KMO and Bartlett’s Test, Uncertainty Factors.

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .669 |
| Bartlett’s Test of Sphericity | Approx. Chi-Square | 742.601 |
| df | 55 |
| Sig. | .000 |
Table 35: Rotated Component Matrix, Uncertainty Factors.

<table>
<thead>
<tr>
<th>Components</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>tunc_2: New configuration</td>
<td>.871</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tunc_1: New components</td>
<td>.847</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tunc_4: New manufacturing process</td>
<td>.770</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>munc_5: Customer novelty seeking</td>
<td></td>
<td>.747</td>
<td></td>
<td></td>
</tr>
<tr>
<td>munc_4: Changing customer preferences</td>
<td></td>
<td>.712</td>
<td></td>
<td></td>
</tr>
<tr>
<td>munc_6: Competitor unpredictable</td>
<td></td>
<td>.598</td>
<td></td>
<td></td>
</tr>
<tr>
<td>munc_3: Unknown channels</td>
<td></td>
<td>.528</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tunc_7: Industry technology change speed</td>
<td></td>
<td></td>
<td>.888</td>
<td></td>
</tr>
<tr>
<td>tunc_6: Product technology change speed</td>
<td></td>
<td></td>
<td>.779</td>
<td></td>
</tr>
<tr>
<td>munc_1RC: Unknown customers</td>
<td></td>
<td></td>
<td></td>
<td>.827</td>
</tr>
<tr>
<td>munc_2: Unknown needs</td>
<td></td>
<td></td>
<td></td>
<td>.819</td>
</tr>
</tbody>
</table>


After rotation, the data converge on four factors that nearly mirror the structure expected. The only exception is that munc_3 occurs in factor 2, instead of only in factor 4, which was the expected outcome (although it has a loading of 0.375 in factor 4).

Even though the factor analysis show that the uncertainty constructs are not unidimensional, the analysis will start by following the intended operationalization, with the two types of uncertainty seen as latent constructs, defined by the variables included. This means that the model in chapter 2, which refers to the total effects on market and technical uncertainty respectively, will be followed. While the division of uncertainty into unfamiliarity and turbulence is interesting, the collective effect has more often been in focus in previous research (e.g. Song et al., 2001).

Regarding the issue of how data should be represented in measures: As concluded in previous sections, the use of surrogate variables appears inappropriate, given the operationalization and question design of this study (Hair et al., 1998). When choosing between summarized scales and factor scores, it should be noted that the factors would need to be summarized as well, if they are used, because there are two factors for each construct. Seemingly, one might as well summarize the items directly, if possible. Summarization also fits with the operationalizations that use non-overlapping items. In addition, it removes the need for the, potentially tricky, interpretation of the effects and meaning of a summarization of normalized orthogonal factors. When selecting the algorithm for generating summarized scales, the two obvious choices are averages of items scores, or sum and the item scores (Hair et al., 1998). Averages appear suitable for approaches where several more or less overlapping indicators are used to capture a phenomenon, given that their internal consistency can be verified. For the current study, however, adding the different indicators for each construct, in order to form a total effect, appears consistent with the operationalizations.
Analysis and Results

Reliability

Item reliability (item-to-total correlation) for the technical uncertainty items is modest, since they target different aspects of the phenomena. The scores of item-to-total correlation are presented in the following table.

Table 36: Item-to-total Statistics, Technical Uncertainty.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>New components</td>
<td>18.354</td>
<td>62.457</td>
<td>.595</td>
<td>.695</td>
</tr>
<tr>
<td>New configuration</td>
<td>17.726</td>
<td>61.914</td>
<td>.608</td>
<td>.690</td>
</tr>
<tr>
<td>New manufacturing process</td>
<td>18.529</td>
<td>66.265</td>
<td>.542</td>
<td>.715</td>
</tr>
<tr>
<td>Product technology change speed</td>
<td>18.588</td>
<td>66.829</td>
<td>.572</td>
<td>.705</td>
</tr>
<tr>
<td>Industry technology change speed</td>
<td>18.993</td>
<td>77.729</td>
<td>.339</td>
<td>.778</td>
</tr>
</tbody>
</table>

Technical uncertainty, nevertheless, seems to have an acceptable level of composite reliability. The obtained Cronbach’s alpha of 0.762 is above the benchmark internal consistency threshold for the creation of a useful index, to be used as a measure (Nunnally, 1978). The different items, representing aspects of technical uncertainty, can therefore be added into a summarized score for technical uncertainty as follows:

\[ \text{tuncADDED} = \text{tunc}_1 + \text{tunc}_2 + \text{tunc}_4 + \text{tunc}_6 + \text{tunc}_7. \]

The distribution of the measure is illustrated below.

![Figure 25: Technical Uncertainty ADDED score.](image-url)
The factor analysis revealed that turbulence items dominate the market uncertainty construct. Furthermore, turbulence appears to be more overlapping with novelty/unfamiliarity in market uncertainty than in technical uncertainty. This is illustrated by the intuitively most important indicator for uncertainty, i.e. customer unfamiliarity, having the lowest item-to-total correlation (0.218). Normally, an item with such low loading should be excluded, since there is a risk of low correlation with the underlying dimension, which causes them to add little explanatory power, while possibly biasing the between-construct relationships (Nunnally, 1978). However, removing this item would severely decrease the construct’s face validity – who would trust a market uncertainty index that does not include the customers? Further, removing the item in question (munc_1RC) would reduce, not increase, the Cronbach’s alpha, leading to such action impairing the composite reliability of the construct, and thus making it less internally consistent. The other items have low reliability scores as well, see the following table.

**Table 37: Item-to-total Statistics, Market Uncertainty.**

<table>
<thead>
<tr>
<th></th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown customers</td>
<td>20.289</td>
<td>53.774</td>
<td>.218</td>
<td>.544</td>
</tr>
<tr>
<td>Unknown need</td>
<td>20.245</td>
<td>51.761</td>
<td>.308</td>
<td>.507</td>
</tr>
<tr>
<td>Unknown channels</td>
<td>18.880</td>
<td>44.766</td>
<td>.309</td>
<td>.510</td>
</tr>
<tr>
<td>Changing customer preferences</td>
<td>19.646</td>
<td>48.376</td>
<td>.391</td>
<td>.468</td>
</tr>
<tr>
<td>Customer novelty seeking</td>
<td>18.441</td>
<td>49.251</td>
<td>.290</td>
<td>.514</td>
</tr>
<tr>
<td>Competitor unpredictable</td>
<td>19.781</td>
<td>53.036</td>
<td>.288</td>
<td>.516</td>
</tr>
</tbody>
</table>

Again, low scores are expected, due to the instrument design. The Cronbach’s alpha for the measure is 0.556. Despite the low reliability score, the first regression runs will be made with a measure calculated as indicated below, since it still appears to be more suitable than the solution with factor scores:

\[
\text{muncADDED} = \text{munc}_1\text{RC} + \text{munc}_2 + \text{munc}_3 + \text{munc}_4 + \text{munc}_5 + \text{munc}_6.
\]

However, further treatment of the measure may be necessary, based on the results of the first regression. The distribution is illustrated below.
(During the regression runs, alternative solutions based on summarized factor scores instead of summarized item scores, were generated and evaluated for comparison. The obtained results were not substantially different.)

4.3.4 Correlations Between Characteristics and Uncertainty

Correlations reveal information about the relationships in the data set. Selected correlations are presented in table 38 below. The first two rows show the control variables that refer to the difficulties of estimating costs and market prices. The next four rows show the business development direction items. They are followed by the opportunity characteristics items.
In Table 38, there are several significant correlations. However, magnitudes are generally rather small, typically around 0.3 or below. Most significant correlations appear to concern the link between technical uncertainty and product development items, but there is also several significant correlations with mdev_1.

The next step is to inspect patterns of how data is correlated on a more aggregated level, i.e. between the measures that represent the constructs. This is a useful preparation before moving on to assessing the relationships through regression, which often helps the interpretation of the findings. The following table contains correlation scores between characteristics (calculated from factor scores) and the uncertainty measures. The components of uncertainty (calculated as summarized scores) are included for comparison.

**Table 39: Correlations Between Characteristics and Uncertainty Constructs.**

<table>
<thead>
<tr>
<th>Venture char. / Uncertainty</th>
<th>munc_1RC munc_2 RC munc_3 munc_4 munc_5 munc_6 munc_7</th>
<th>tunc_1 tunc_2 tunc_4 tunc_6 tunc_7 tunc_8RC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control items:</strong></td>
<td>munc_7 .094 .205** .233** .098 .117 .105 .208**</td>
<td>1 .231** .181** .027 - .016 .090 .227**</td>
</tr>
<tr>
<td>tunc_8RC</td>
<td>.075  .-020 .055 .229** .079 -.078 .090</td>
<td>1 .201** .189** .253** .120*</td>
</tr>
<tr>
<td><strong>Direction &amp; distance</strong></td>
<td>munc_7 .094 .205** .233** .098 .117 .105 .208**</td>
<td>1 .231** .181** .027 - .016 .090 .227**</td>
</tr>
<tr>
<td>mdev_1 .176** .173** .415**</td>
<td>.078 .125* .024 .199**</td>
<td>.014 .141* .059 -.012 .003 .055</td>
</tr>
<tr>
<td>mdev_2RC .076 .105 .120*</td>
<td>.086 .71 .053 .222**</td>
<td>.209** .240** .149** .078 .001 .066</td>
</tr>
<tr>
<td>pdev_1RC -.032 -.039 .134*</td>
<td>.100 .037 .005 .034</td>
<td>.334 .315** .189** .164** .052 .166*</td>
</tr>
<tr>
<td>pdev_2 -.157** -.025 -.096</td>
<td>.031 .207** .018 .128*</td>
<td>.320** .404** .262** .433** .196** .144*</td>
</tr>
<tr>
<td><strong>Opportunity characteristics</strong></td>
<td>oorg_1 .098 .062 .013</td>
<td>-.091 -.135* -.009 .057</td>
</tr>
<tr>
<td>oorg_2RC .015 .046 .001</td>
<td>-.049 -.012</td>
<td>.000 .008</td>
</tr>
<tr>
<td>opsize_1 <em>.140</em> -.019 .100</td>
<td>.098 .298** .053 .031</td>
<td>-.030 .040 .051 .096 .100 -.019</td>
</tr>
<tr>
<td>opsize_2 -.151* -.000 .085</td>
<td>.055 .272**</td>
<td>.022 .046</td>
</tr>
<tr>
<td>opsize_3 -.151* -.058 .051</td>
<td>.003 .244**</td>
<td>.038 -.044</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.01 level (2-tailed).
** Correlation is significant at the 0.05 level (2-tailed).

Contrary to expectations (see chapter 2, theory) market development is correlated to both types of uncertainty, while product development is only significantly related to technical uncertainty. The right side of the table, however, indicates that product development is negatively linked to market unfamiliarity. I will return to this unexpected pattern later in the chapter.
Comparison of significance levels and signs of the correlations indicates that most of the resulting variance in uncertainty concern the unfamiliarity sub-dimensions. However, product development is significantly associated to uncertainty regarding both technical turbulence and unfamiliarity.

4.3.5 Characteristics - Uncertainty Relationships

Regression is a technique for investigating the significance and magnitude of relationships between phenomena. Two or more phenomena are quantified with measures and the level of influence between them is indicated by “beta” scores obtained in the regression runs. The underlying assumption is a linear relationship between the phenomena, as described by the typical regression equation below, but other types of relationships can be modeled as well.

\[ y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_n x_n + \varepsilon \]

The beta scores indicate the magnitude of separate influence that the corresponding independent variable (x) has on the dependent variable (y), while controlling for the simultaneous influence that other variables have (Wooldridge, 2003). This is useful for evaluating the ceteris paribus effect of each included construct. However, it also makes it crucial to include all available variables that may have an effect: Otherwise there is a risk that the beta scores are overstated, due to correlations between included and excluded independent variables. An important aspect of regression analysis is hence the selection of so called “control variables” to include. Control variables represent aspects with potential influence on the predicted (dependent) variable, which are not included in the model under investigation. When it comes to perceived uncertainty there are three main control variable candidates available in this study:

- First, there is the issue of opportunity size mentioned above. It should be included, as its hypothesized negative influence on outcome might have something to do with uncertainties.

- Second, since uncertainty refers to the lack of information, and possibly knowledge, it is plausible that uncertainty is inversely related to the amount of available knowledge resources. A useful proxy for such resources can, under the assumption that knowledge is amassed in individuals, be the firm’s organizational size. There are hence several reasons to include this control variable.

- Third, it is possible that business development experience from previous corporate entrepreneurship attempts makes the actors less sensitive to, or concerned by, uncertainty. MacMillan et al., (1986) find that the success of ventures is highly correlated with the number of previous venture attempts, successful or not. Their conclusion is that managers with experience from more than three venture attempts consider market uncertainty and planning problems as significantly smaller obstacles to the success of corporate venture than their less experienced counterparts do.
The level of experience is available in the venture-level data (operationalized as inexperience) and can thus be included. Generally, respondents claim to have implemented many ventures before the one in question, leading to skewness in this control variable. Skewness, and other divergences from normality, are problematic in multivariate analysis because they can bias the results (Hair et al., 1998). However, attempts to transform this variable did not improve the distribution much, and the original values were therefore kept and used in the analysis (cf. Hair et al., 1998).

Organizational size is measured as the number of employees. As evident from figure 27 below, this is a highly skewed measure. This time, however, it was possible to transform the variable, and thereby obtain a distribution closer to the normal. For organizational size, a log-transformation improves the distribution drastically, and it is a transformation for which the meaning is relatively easy to interpret in the result stage.

![Figure 27: Organizational Size 2005 (left) and Log of Organizational Size (right).](image)

### 4.3.6 Regression With the Original Model

In statistics, $R^2$ is the coefficient of determination, or the proportion of a sample variance of an independent variable that is "explained" by the predictor variables, when a linear regression is done. An advantageous approach is to start by estimating a model that only includes the control variables, so that their separate explanatory power can be obtained (the $R^2$ for the model). This model is henceforth called model 0. The $R^2$ will then be used as a baseline for evaluating the quality of model 1, which includes the main predictor (i.e. $R^2$ is used as a quantitative measure of the "goodness-of-fit" of data. It will always be a positive value between 0 and 1. A value of 0 indicates no relationship between the variation of the independent variables and the variation of the dependent variable. As the value gets closer to 1, the variation is better defined by the x values, and increasingly accurate predictions for y are obtained. The $R^2$ value can be interpreted as the percentage of the variance explained by the regression line (Wooldridge, 2003).
independent) variables, in addition to the control variables. The predictor variables of interest here are the measures of venture characteristics. The difference between $R^2$ model 0 and $R^2$ model 1 answers how much more uncertainty is explained by adding the predictors.

**Market Uncertainty, Model 0 and 1**

As indicated in the following table, the control variables alone have a very low explanatory power. The $R^2$ value indicates that model 0 explains only 5.5% of the variance of market uncertainty, in this sample. Organizational size and business development experience are apparently largely unimportant as sole explanations for the extent of perceived market uncertainty.

**Table 40: Summary Market Uncertainty Model 0, Only Control Variables.**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>.234</td>
<td>.055</td>
<td>.048</td>
<td>7.94750</td>
</tr>
</tbody>
</table>

Predictors: (Constant), LOGorgsize05, Low previous biz. dev. experience

Inclusion of the predictor variables improve $R^2$ as illustrated in table 41 below. The resulting score, 0.153, is on the low side considering the sample size and that previous research suggests a relatively direct relationship between development efforts and uncertainty. Adjusted $R^2$ is a more conservative goodness-of-fit measure, which compensates for the model fit that is related to the fact that variables are added, i.e. it ignores the increase in $R^2$ that would have occurred by adding a variable with random content. As will be demonstrated below, the low score is partly caused by the way uncertainty is modeled.

**Table 41: Summary Market Uncertainty Model 1, Control and Predictor Variables.**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>18.661</td>
<td>2.153</td>
<td>.191</td>
<td>.190</td>
</tr>
<tr>
<td></td>
<td>.638</td>
<td>.191</td>
<td>.190</td>
<td>3.335</td>
</tr>
<tr>
<td></td>
<td>1.759</td>
<td>1.241</td>
<td>.081</td>
<td>1.418</td>
</tr>
<tr>
<td></td>
<td>1.026</td>
<td>.462</td>
<td>.126</td>
<td>2.222</td>
</tr>
<tr>
<td></td>
<td>2.167</td>
<td>.461</td>
<td>.266</td>
<td>4.695</td>
</tr>
<tr>
<td></td>
<td>-.668</td>
<td>.461</td>
<td>-.082</td>
<td>-1.449</td>
</tr>
<tr>
<td></td>
<td>.668</td>
<td>.461</td>
<td>.082</td>
<td>1.455</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.391</td>
<td>.153</td>
<td>.134</td>
<td>7.58059</td>
</tr>
</tbody>
</table>

Dependent variable: muncADDED
Concerning the individual variables, market development and opportunity size emerge as significant predictors of market uncertainty. Market development has approximately twice as much influence on perceived uncertainty as opportunity size has. Lack of business development experience has some influence on uncertainty as well, with a magnitude slightly larger than opportunity size (see the table above).

In contrast to expectations, product development has no significant influence on the occurrence of market uncertainty in this sample. The models F value is 8.024, which confirms that the regression is significant, and estimates market uncertainty approximately eight times better than the use of mean values (Hair et al., 1998).

**Technical Uncertainty, Model 0 and 1**
Model 0 has an $R^2$ of 0.004 indicating that the control variables’ effect on technical uncertainty is negligible, see the following table.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R$^2$</th>
<th>Adjusted R$^2$</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>.066</td>
<td>.004</td>
<td>-.003</td>
<td>9.95778</td>
</tr>
</tbody>
</table>

Predictors: (Constant), LOGorgsize05, Low previous biz. dev. experience

Adding the predictor variables increases the $R^2$ to 0.263 (see table 43 below), indicating that these variables are far more important for explaining technical uncertainty.

**Table 42: Summary Technical Uncertainty Model 0, Only Control Variables.**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low previous biz. dev. experience</td>
<td>.246</td>
<td>.218</td>
<td>.060</td>
</tr>
<tr>
<td></td>
<td>LOGorgsize05</td>
<td>.219</td>
<td>1.413</td>
<td>.008</td>
</tr>
<tr>
<td></td>
<td>opportunity size factor</td>
<td>.740</td>
<td>.526</td>
<td>.074</td>
</tr>
<tr>
<td></td>
<td>market development factor</td>
<td>2.210</td>
<td>.525</td>
<td>.222</td>
</tr>
<tr>
<td></td>
<td>product development factor</td>
<td>4.468</td>
<td>.525</td>
<td>.449</td>
</tr>
<tr>
<td></td>
<td>opportunity origin factor</td>
<td>-.601</td>
<td>.523</td>
<td>-.060</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.513(a)</td>
<td>.263</td>
<td>.246</td>
<td>8.63244</td>
</tr>
</tbody>
</table>

Dependent variable: tuncADDED
Both product development and market development are significant predictors of technical uncertainty, according to these two regression models. This pattern diverges from expectations; product development was expected to be associated with both types of uncertainty while market development was expected to lead to market uncertainty only (see section 2.3.3).

The regression has an F value of 15.866. This confirms that the regression is significant and generates almost sixteen times better predictions of technical uncertainty (in this sample) than the use of mean values.

In summary, it appears that venture type has an influence on the occurrence of uncertainty in the investigated corporate entrepreneurship attempts. However, it is the direction of business development that dominates the occurrence of uncertainty, while the influence of size and source of opportunity seem to be insignificant. Market development leads to both technical and market uncertainty, while product development only has a significant effect on technical uncertainty. As a result, one may conclude that these models support hypothesis 1 and 2, but not hypothesis 3.

### 4.3.7 Adjusting the Model

The goodness-of-fit of the models above is not very high. One should not overstate the importance of $R^2$, since it is sensitive to both the number of variables and the sample size. F and t-tests of significance are more important criteria, since they are robust and strict in comparison (Johnston & DiNardo, 1997). However, $R^2$ is useful for evaluation of alternative models. For this purpose it is interesting to consider whether the relatively low $R^2$ score reflects a true relationship between the constructs, that these constructs are more loosely connected than previous research implies, or if it is influenced by the nature of the data or on shortcomings in the model.

- Concerning the data, it is possible that the low $R^2$ relates back to the nature of the sample or the instrument. For instance, the low Cronbach’s alpha of market uncertainty suggests that the construct, as a single phenomenon, is indecisively defined by the indicators, which could be a reason why it is difficult to predict it with precision.

- Regarding the model, recall that the uncertainty measures are not unidimensional in the gathered data, but consist of the two dimensions: Turbulence and unfamiliarity. In the theory chapter, the dimensions are bundled and together referred to as indicators of uncertainty, which may be suitable in certain applications. However, this approach may be unsuitable for the present study.

Previous research is mainly concerned with the extent of uncertainty, usually as a mediator or moderator in some characteristics-performance relationships, and does not emphasize why it occur. The operationalizations used (and subsequently borrowed for this study) can therefore use turbulence and unfamiliarity as indicators of the uncertainty faced by the firm, or venture, and then measure whether this uncertainty affects the investigated relationship. This study, on the other hand, aims at uncovering the extent of uncertainty that can be related to the nature of the venture pursued. Now, is it reasonable to assume...
that the choice of development direction affect the level of unfamiliarity with the new business area and the tasks involved in entering it? Certainly. Is it then reasonable to assume that the same choices influence the level of turbulence in the targeted market and industry? That is more doubtful. The firm may influence the level of encountered turbulence by selecting an appropriate industry to enter (a strategic choice that, however, may not always be available). Nevertheless, once venture selection is made, turbulence is mainly an exogenous phenomenon, under the assumptions that the selection choice is not changed and that SME:s generally have limited power to influence the environment.

Further, in the cause-and-effect outlook of this part of the study, is unfamiliarity suitable as an indicator of uncertainty? I would say yes, as a lack of familiarity with needs and market channels, unclear customer groups, novel technologies, and processes, all represent areas where information gathering and processing may be required before decisions and task execution (Galbraith, 1973). Is, on the other hand, turbulence a good indicator of uncertainty? Well, here it is logical to argue that turbulence is more of a cause of uncertainty than uncertainty in itself. Turbulence is about the change in markets and technology that are relevant for the venture. This means that one can assume that a high degree of turbulence involves a greater risk of the firm, at a given time, being unfamiliar with such things as needs, market channels, customer groups, technologies and processes. Moreover, the information the firm does possess become obsolete more quickly. So, when investigating a causal relationship, it may be a mistake to include turbulence in the dependent variable, especially since the correlations in table 39 support that most of the variance in perceived uncertainty relates to the unfamiliarity sub-dimensions.

The alternative is to include turbulence, as an independent construct, in an updated model that takes its influence into account. An appropriate approach is therefore to model turbulence as a cause of uncertainty (and not as a part of uncertainty), and use to unfamiliarity as a more valid measure of uncertainty. The alternative models are illustrated in figure 28 below.
The new constructs have fewer indicators than the uncertainty constructs, which normally leads to lower Cronbach’s alpha scores (see tables below).

**Table 44:** Descriptive Statistics, Components of Uncertainty.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>S.D.</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market unfamiliarity (munf)</td>
<td>10.91</td>
<td>5.38</td>
<td>0.506</td>
</tr>
<tr>
<td>Market turbulence (mturb)</td>
<td>12.50</td>
<td>5.23</td>
<td>0.600</td>
</tr>
<tr>
<td>Technical unfamiliarity (tunc)</td>
<td>14.53</td>
<td>7.36</td>
<td>0.800</td>
</tr>
<tr>
<td>Technical turbulence (tturb)</td>
<td>8.51</td>
<td>4.66</td>
<td>0.774</td>
</tr>
</tbody>
</table>

As before, the market uncertainty items form a less internally consistent construct than the technical uncertainty items do. The distributions of the new constructs are illustrated below.
Figure 29: Histograms, Components of Uncertainty.
The histograms above show that the measures bear some resemblance to normal distributions, but there are also a number of spikes in each diagram. Despite efforts, no simple transformations were found that improved the distributions. The measures will therefore be used as they are. However, based on recommendations by Coakes (2005), multivariate outliers with a Mahalanobis' distance of more than 18.84 (see Chi 2 table at the 0.01 significance level) were excluded. Two such outliers were identified when investigating market unfamiliarity, but none was identified for technical unfamiliarity.

**Technical Uncertainty, model 2**

I will start by examining technical unfamiliarity as the dependent variable. Model 2 improves the $R^2$ with 0.031 and the adjusted $R^2$ measure with 0.03. As a result, model 2 is only slightly better than model 1 at predicting technical uncertainty.

**Table 45: Technical Uncertainty Model 2 Coefficients.**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>9.123</td>
<td>1.969</td>
</tr>
<tr>
<td>Low previous biz. dev. experience</td>
<td>.161</td>
<td>.158</td>
</tr>
<tr>
<td>LOGorgsize05</td>
<td>1.208</td>
<td>1.026</td>
</tr>
<tr>
<td>opportunity size factor</td>
<td>-.072</td>
<td>.385</td>
</tr>
<tr>
<td>market development factor</td>
<td>1.941</td>
<td>.381</td>
</tr>
<tr>
<td>product development factor</td>
<td>2.494</td>
<td>.401</td>
</tr>
<tr>
<td>opportunity origin factor</td>
<td>-.688</td>
<td>.379</td>
</tr>
<tr>
<td>tech turbulence</td>
<td>.350</td>
<td>.087</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>$R$</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson$^{64}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>.543</td>
<td>.295</td>
<td>.276</td>
<td>6.25874</td>
<td>2.045</td>
</tr>
</tbody>
</table>

Dependent Variable: ttunf.

The model’s F value, on the given sample, is 15.881. Significant indicators for technical unfamiliarity are, ordered after magnitude of (standardized) influence, product development, technical turbulence, and market development.

**Market Uncertainty, Model 2**

Adding turbulence as a control variable increases the adjusted $R^2$ with 0.059, and the F value increased to 10.232. Concerning the coefficients, the main difference from model 1 is that opportunity origin, instead of opportunity size, becomes significant, probably because opportunity size is correlated with market turbulence. See table 46 below.

---

$^{64}$ The Durbin-Watson statistic is a test statistic used to detect the presence of autocorrelation in a regression analysis’ residuals. A value close to two, such as above, indicates that there appears to be no problems with autocorrelation.
Table 46: Market Uncertainty Model 2 Coefficients.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>2 (Constant)</td>
<td>7.227</td>
<td>1.506</td>
<td>4.798</td>
<td>.000</td>
</tr>
<tr>
<td>Low previous biz. dev. experience</td>
<td>.337</td>
<td>.123</td>
<td>.152</td>
<td>2.734</td>
</tr>
<tr>
<td>LOGorgsize05</td>
<td>.605</td>
<td>.816</td>
<td>.041</td>
<td>.742</td>
</tr>
<tr>
<td>opportunity size factor</td>
<td>-.156</td>
<td>.305</td>
<td>-.029</td>
<td>-.512</td>
</tr>
<tr>
<td>market development factor</td>
<td>1.519</td>
<td>.298</td>
<td>.281</td>
<td>5.095</td>
</tr>
<tr>
<td>product development factor</td>
<td>-1.060</td>
<td>.298</td>
<td>-.195</td>
<td>-3.556</td>
</tr>
<tr>
<td>opportunity origin factor</td>
<td>.965</td>
<td>.293</td>
<td>.180</td>
<td>3.294</td>
</tr>
<tr>
<td>market turbulence</td>
<td>.141</td>
<td>.059</td>
<td>.136</td>
<td>2.383</td>
</tr>
</tbody>
</table>

Dependent Variable: tunf.

The table reveals that product development now has a significant beta score. Surprisingly, this score is negative, which implies that large development efforts are linked to a reduction of market unfamiliarity. This counterintuitive result could have at least three different explanations: i) the result may reflect a true, but unexpected, relationship; ii) there might have been problems with the instrument or coding of data; or iii) the sample may be unsuitable for studying the phenomena.

Concerning the sample and true phenomena, the firms studied may be aware of the high risks of simultaneously pursuing market and product development, and therefore avoid such ventures (Roberts & Berry, 1985). The graphs in figure 30 below give some support for this explanation, since many of the innovative products (high scores on pdev_2) appear to be developed under low market uncertainty (low scores on munc_1RC). The resulting correlation between the variables is therefore negative. This would imply that the results are due to problems with a group of influential cases (Hair et al., 1998), and that the negative link between product development and market uncertainty is overstated.
If the beta score is a result of an influential group of ventures in the lower right corner in the scatterplot above, it implies that the sample is heterogeneous and unsuitable tests of a
relationship between product development and market uncertainty. Such patterns may occur if the ventures involve development of highly novel products for which the market is certain, which can happen if products are developed on customers’ requests, or if contract manufacturers who provide product development as a service have leaked into the sample. These ventures would be characterized by high scores on product development and external origin, but low scores on market development, and are therefore likely to belong to cluster 3. However, removing cluster 3 from the sample does not change the sign and significance of the beta score in question.

In consequence, the next step is to assess if the observation reflects a true relationship or if it is caused by the quality and nature of the data. As evident from figure 30, the measures, and even more so the underlying items, are not normally distributed. This divergence from normality may be the cause of the negative beta score. The regression equation was therefore tested with a structural equation software, using partial least squares (PLS) for optimizing the estimates (regression uses ordinary least squares). This method is more thoroughly described in the method chapter, but of relevance here is that, aside from the mentioned difference in estimating the structural model, the latent constructs are calculated differently as well. They are obtained through confirmatory factor analysis, instead of through summarized scores.

Nevertheless, if the relationship does not materialize when using PLS, one may expect that it is caused by shortcomings in the data, set rather than a true relationship. Running the market unfamiliarity model with PLS generates a goodness-of-fit value of 0.239. The results are similar to the ones obtained through regression. However, the t-value for product development is below the threshold for a 0.05 level of significance (i.e. 1.645). In conclusion, it is possible that the beta score was partly a result of non-normality. The evidence for a true inverse relationship between product development and market uncertainty is therefore inconclusive.

### 4.3.8 Summary of Results

It can now be concluded that the investigated ventures follow the patterns outlined in hypothesis 1 and 2, when tested with the models used above\(^{65}\). It was found that model 2, where uncertainty was operationalized as unfamiliarity, was more credible than the original model and provided better results.

- The regression runs showed that market uncertainty was significantly related to the extent of market development. It was also found to be the most important variable for predicting perceived market uncertainty. In light of these findings, hypothesis 1 was supported.

- The standardized beta score for product development’s association with technical uncertainty was even higher than the corresponding score for market development and uncertainty. In addition, it was the most important variable in this regression

\(^{65}\) The support for hypothesis 1 and 2 was confirmed in the subsequent SEM analysis, which uses other algorithms for calculating the measure and the relationship.
Analysis and Results

models. The study therefore *supports* hypothesis 2. Hypothesis 3 refers to an expected link between product development and market uncertainty, based on the assumption that new (rather than updated) products often are created for meeting another need than current products. However, the obtained result was a negative, not positive, relationship between product development and market uncertainty. Hypothesis 3 must hence be *rejected* in this study. A possible reason is that the firms prefer to undertake larger product development ventures primarily when the customers and their needs are fairly certain.

Hypothesis 7 states that opportunities of external origin are primarily associated with *technical* uncertainty. As expected, there was a negative relationship between internal origin and technical uncertainty. However, the effect was small (-0.094 standardized beta) and significant on the 0.1 level only. I did not find this level of support convincing, especially since the SEM analysis (in the next section) suggested an even weaker relationship. Hypothesis 7 is therefore *rejected*.

However, it appears that opportunities of internal origin are primarily associated with *market* uncertainty, as proposed in hypothesis 8. In the regression, internal origin had an influence on market uncertainty that actually was stronger than that of market turbulence. This relationship had a high significance level (0.01) and hypothesis 8 was hence *supported*.

Inspections of residual patterns and Durbin-Watson values have not revealed any signs of problems with heteroskedasticity or autocorrelations in residuals.

Regarding the control constructs: No relationship between opportunity, or organizational, size and uncertainty was observed when testing model 2. However, previous business development experience seems to have a significant mitigating effect on perceived market uncertainty.

---

66 This support for hypothesis 8 was not confirmed in the SEM analysis, probably partly because one of the two origin items, oorg_2RC, had to be dropped.
4.4 RQ4: Prediction of Venture Outcome

Previous sections have shown that ventures can be characterized by the constructs that describe the direction of business development and the nature of the opportunity. The effect of motives on the selection of venture has also been illustrated, as well as the resulting effects on the occurrence of uncertainty. The final step in the analysis is to link venture characteristics and uncertainty to outcome. This is done by testing the following hypotheses:

Hypothesis 4: Market uncertainty has a negative influence on outcome.

Hypothesis 5: Technical uncertainty has a negative influence on outcome.

Hypothesis 6: Opportunity size has a negative influence on outcome.

Hypothesis 9: Opportunities of internal origin are larger than opportunities of external origin.

The following figure illustrates the scope of this section, in relation to the overall research model:

![Figure 31: Scope of the Fourth Analysis Section.](image-url)
4.4.1 Data Preparation

To prepare for proceeding with SEM, the first step is to create and assess measures for the outcome construct. For the other constructs, the available indicators will be included in the analysis, and the evaluation of construct reliability is made automatically by the software when executing the analysis. The obtained results will be interpreted, compared to hypotheses and summarized. However, as described in chapter 3 there are two measures for the outcome construct: Venture results, and survival/termination.

Moreover, there are five available indicators for results, while venture status can be used as a basis for measuring survival/termination (with some transformations). The following table describes the data.

Table 47: Missing Value Analysis and Descriptives, Outcome Variables.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Missing</th>
<th>No. of Extremes(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>v_status</td>
<td>268</td>
<td>3.24</td>
<td>.923</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>res_1</td>
<td>259</td>
<td>5.43</td>
<td>2.563</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>res_3</td>
<td>258</td>
<td>5.18</td>
<td>2.503</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>res_4</td>
<td>259</td>
<td>5.12</td>
<td>2.439</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>res_5</td>
<td>257</td>
<td>5.08</td>
<td>2.381</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>res_6</td>
<td>257</td>
<td>4.20</td>
<td>2.489</td>
<td>17</td>
<td>0</td>
</tr>
</tbody>
</table>

a Number of cases outside the range (Q1 - 1.5*IQR, Q3 + 1.5*IQR).

The Little's MCAR test renders a Chi-Square score of 48.299 and a significance level of 0.01, confirming that missing values are distributed completely at random. The missing values are therefore replaced through regression. Four out-of-range values were then identified and truncated. It is worth noting that this set of variables has a markedly higher level of missing data than the other investigated sets have.

4.4.2 Representation of Outcome

Factor analysis confirms that the results indicators (res_1 through 6) are unidimensional. They form a single factor that explains 66.42% of the variance. However, res_6 (time to market) has a much lower loading than the other indicators, suggesting that its correlation with the underlying dimension, dominated by the other variables, is low. Nevertheless, since structural equation modeling estimates the constructs and their relationship structure simultaneously, there is no need for a separate investigation of construct reliability at this stage. Instead, all items enter the SEM analysis, and some are potentially removed in the event that they do not fulfill reliability criteria.

Measuring outcome as survival/termination requires the creation of a dummy variable, based on the information in the venture status variable (vstatus). The new variable takes the value 0 if the venture was terminated, and the value 1 if the venture has been completed or is still in progress. Ventures that have just been started are coded as 0 if the result (calculated as a factor score of res_1, res_3, res_4, res_5 and res_6) is below average, and as 1 if the result is above average. The inclusion of the recently started ventures rests on the
assumption that respondents have followed the instruction to only report ventures that have proceeded far enough to be evaluated.

### 4.4.3 Structural Equation Modeling

The theory-based structural model was developed in section 2.4 and illustrated by the path diagram in figure 10 (page 52). Path diagrams assume that all expected casual relationships are included, and that the relationships between constructs are linear (Hair et al., 1998). The diagram can now be updated, taking into account what has been learned about how to model uncertainty in new venture projects. The measurement model for uncertainty will therefore contain the market unfamiliarity items, while the turbulence items form its own measurement model, so its relationship with unfamiliarity can be estimated. Further, opportunity size was found to have no significant relationship with unfamiliarity, while internal opportunity origin had a positive influence on market unfamiliarity. Due to the close near-significance of opportunity origin in the prediction of technical uncertainty, I include that relationship in the structural model for further testing. Similarly, I need to include market development in the prediction of technical unfamiliarity, since it was found to be (unexpectedly) significant in section 4.3. These changes are included in the new path diagram below.

![Updated Path Diagram](image-url)

**Figure 32:** Updated Path Diagram.
Analysis and Results

The updated model can be translated into equations, where the different estimates and measures are specified. The causal relationships indicated in figure 32 are consequently converted into regression-like structural equations that define the structural model. This is a straightforward process, where each endogenous construct, i.e. any construct with one or more straight arrows leading to it, is a dependent variable in a separate equation. The exogenous (i.e. predictor) constructs are all constructs whose arrows point to the endogenous construct. In our case, this means that we get four structural equations:

<table>
<thead>
<tr>
<th>ENDOGENOUS VARIABLES</th>
<th>EXOGENOUS VARIABLES</th>
<th>ENDOGENOUS VARIABLES</th>
<th>ERROR</th>
</tr>
</thead>
<tbody>
<tr>
<td>munf = β1 mturb + β2 mdev + β3 pdev + β4 oorg</td>
<td>+ ε1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tunf = β5 pdev + β6 oorg + β7 tturb</td>
<td>+ ε2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>opsize = β8 oorg</td>
<td>+ ε4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>outc = β9 opsize</td>
<td>+ β10 munf + β11 tunf</td>
<td>+ ε4</td>
<td></td>
</tr>
</tbody>
</table>

Control Constructs

In order to get the best possible estimation of the relationships, it is necessary to include all measured constructs that may have an effect on outcome. These additional constructs are referred to here as control constructs, analogous to the use of control variables in regression. Without control constructs, there is a risk that the identified relationships are overstated.

In addition to firm size, which has already figured in the study, the prediction of outcome makes it relevant to take a look at another group of constructs. The venture characteristics and uncertainty constructs refer to the conditions of the venture, but when it comes to outcome it is possible that other issues are also important, for instance the venture process. While this investigation focuses on consequences of venture selection, it nevertheless includes three constructs that can be useful as controls since they relate to contexts and conditions for the venture process.

- First, although it has been suggested that entrepreneurial activities may be initiated even if all the necessary resources are not in the hands of the entrepreneur at the moment (e.g. Stevenson & Gumpert, 1983), the required resources need to be supplied during the process, one way or the other. Manufacturing SME:s in Sweden report that obtaining financial resources is indeed an obstacle for development activities (see appendix 8). A measure that reflects the ability to gather the required resources is resource acquisition self-efficacy (RASE) (Brown, 1996). RASE is a subjective measure where respondents self-assesses his or her ability to

---

67 The (logarithm of) organizational size was not found relevant for predicting uncertainty, according to preceding analysis. The inclusion of size, as a control for outcome, is nevertheless important, since the conditions under which the venture process is undertaken may be very different for small firms compared to larger firms (e.g. resource availability).
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gather financial resources from different typical sources. Even though the measure is subjective, it may have an influence on venture outcome as the subjective assessments can reflect some true ability of obtaining resources for the process.

- Second, the effect of previous *venturing experience* on perceived uncertainty was established in the previous section (4.3). Empirical research has, however, shown that previous experience improves the chances for venture success as well, presumably through the resulting skills and process knowledge (MacMillan et al., 1986; von Hippel, 1977).

- Third, it has been proposed that the *style of management* within the firm has an impact on entrepreneurial activities. Corporate entrepreneurship is an ambiguous and uncertain process (Garud & Van den Ven, 1992). The management requirements of corporate ventures differ from, and even conflict with, management of the transformation process within established firms (Stykes & Block, 1989; McMillan et al., 1986). In particular, it is suggested that entrepreneurship instead benefits from interpersonal communication, informality of management, and structures with organic attributes (Burns & Stalker, 1961; Miller & Friesen, 1983; Kuratko et al., 1990; Kanter, 1985; Stevenson & Jarillo, 1990). In this study, the management construct of the EM measure is available (i.e. entrepreneurial management, see Brown et al., 2001). This measure was specifically developed for capturing information regarding management formality relevant for corporate entrepreneurship, and is therefore appropriate to include as a control construct.

Moreover, there are several arguments for including industry as a control variable. From a methodological point of view, it is necessary to control for industry effects in order to confirm whether findings are reliable (compare with section 4.1.4), and to reveal possible sample heterogeneity problems. Empirically, there are contemporary studies that confirm differences in activity levels, conditions, and obstacles between the four investigated industries (SCB, 2006). Industry is therefore introduced in the model through three dummy variables, directly linked to outcome.

4.4.4 Obtaining the Results

Even though measurement models and structural models are estimated simultaneously by PLS Graph, the used software, analysis is normally done in several steps. The measurement models must first be evaluated, adjusted, and then evaluated again, until they meet the criteria for reliability and validity. When the measurement models are deemed adequate it is time to assess the structural relationships (Hulland, 1999).

Regarding the Measurement Models

Measurement models can be reflective or formative. Reflective models have variables that are indicators of some unobserved dimension; they reflect the existence of something that can be thought of as a latent construct. In formative models, the indicators collectively determine the value of the construct, since they give rise to the observed measure together. In other words, a linear combination of formative indicators defines, or causes, the construct (Hulland, 1999). In the investigation at hand, attempts were made to meas-
ure some constructs, in particular uncertainty, with indicators that were exhaustive and mutually exclusive. This suggests a formative approach. However, as there is no evidence of the measurement successfully capturing these constructs in the intended way, a reflective mode is appropriate for all measurement models in this study. The following item and construct reliability scores were obtained in the first run of the full model. The items marked with bold font are discussed more thoroughly in the next paragraph.

Table 48: Assessing Item Reliability.

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Indicator</th>
<th>Original sample estimate</th>
<th>Mean of subsamples</th>
<th>Standard error</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market unfamiliarity</td>
<td>munc_1RC</td>
<td>0.5776</td>
<td>0.5303</td>
<td>0.1349</td>
<td>4.2818</td>
</tr>
<tr>
<td></td>
<td>munc_2</td>
<td>0.6161</td>
<td>0.6068</td>
<td>0.0949</td>
<td>6.4903</td>
</tr>
<tr>
<td></td>
<td>munc_3</td>
<td>0.7625</td>
<td>0.7629</td>
<td>0.0574</td>
<td>13.2928</td>
</tr>
<tr>
<td></td>
<td>munc_7</td>
<td>0.5868</td>
<td>0.5952</td>
<td>0.1017</td>
<td>5.7673</td>
</tr>
<tr>
<td>Reliability = 0.733</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market turbulence</td>
<td>munc_4</td>
<td>0.8205</td>
<td>0.8116</td>
<td>0.0673</td>
<td>12.1928</td>
</tr>
<tr>
<td></td>
<td>munc_5</td>
<td>0.7093</td>
<td>0.6978</td>
<td>0.1385</td>
<td>5.1208</td>
</tr>
<tr>
<td></td>
<td>munc_6</td>
<td>0.7014</td>
<td>0.6727</td>
<td>0.1135</td>
<td>6.1772</td>
</tr>
<tr>
<td>Reliability = 0.789</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market development</td>
<td>mdev_1</td>
<td>0.8486</td>
<td>0.8488</td>
<td>0.0833</td>
<td>10.1916</td>
</tr>
<tr>
<td></td>
<td>mdev_2RC</td>
<td>0.6354</td>
<td>0.5965</td>
<td>0.1485</td>
<td>4.2798</td>
</tr>
<tr>
<td>Reliability = 0.715</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product development</td>
<td>pdev_1RC</td>
<td>0.7298</td>
<td>0.7313</td>
<td>0.0773</td>
<td>9.4448</td>
</tr>
<tr>
<td></td>
<td>pdev_2</td>
<td>0.7998</td>
<td>0.7879</td>
<td>0.0639</td>
<td>12.5176</td>
</tr>
<tr>
<td>Reliability = 0.739</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunity origin</td>
<td>oorg_1</td>
<td>0.9902</td>
<td>0.8234</td>
<td>0.2340</td>
<td>4.2314</td>
</tr>
<tr>
<td></td>
<td>oorg_2RC</td>
<td>0.1024</td>
<td>0.2511</td>
<td>0.5113</td>
<td>0.2003</td>
</tr>
<tr>
<td>Reliability = 0.542</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunity size</td>
<td>opsize_1</td>
<td>0.8883</td>
<td>0.8917</td>
<td>0.0274</td>
<td>32.3772</td>
</tr>
<tr>
<td></td>
<td>opsize_2</td>
<td>0.8748</td>
<td>0.8767</td>
<td>0.0359</td>
<td>24.3617</td>
</tr>
<tr>
<td></td>
<td>opsize_3</td>
<td>0.8115</td>
<td>0.8004</td>
<td>0.0588</td>
<td>13.8018</td>
</tr>
<tr>
<td>Reliability = 0.894</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>res_1</td>
<td>0.9057</td>
<td>0.9004</td>
<td>0.0194</td>
<td>46.7681</td>
</tr>
<tr>
<td></td>
<td>res_3</td>
<td>0.9100</td>
<td>0.9047</td>
<td>0.0157</td>
<td>58.1004</td>
</tr>
<tr>
<td></td>
<td>res_4</td>
<td>0.9229</td>
<td>0.9225</td>
<td>0.0135</td>
<td>68.5278</td>
</tr>
<tr>
<td></td>
<td>res_5</td>
<td>0.8375</td>
<td>0.8326</td>
<td>0.0421</td>
<td>19.8955</td>
</tr>
<tr>
<td></td>
<td>res_6</td>
<td>0.3192</td>
<td>0.3052</td>
<td>0.1031</td>
<td>3.0961</td>
</tr>
<tr>
<td>Reliability = 0.899</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical unfamiliarity</td>
<td>tunc_1</td>
<td>0.8524</td>
<td>0.8517</td>
<td>0.0236</td>
<td>36.1855</td>
</tr>
<tr>
<td></td>
<td>tunc_2</td>
<td>0.8602</td>
<td>0.8587</td>
<td>0.0274</td>
<td>31.3704</td>
</tr>
<tr>
<td></td>
<td>tunc_4</td>
<td>0.7412</td>
<td>0.7462</td>
<td>0.0503</td>
<td>14.7406</td>
</tr>
<tr>
<td></td>
<td>tunc_8</td>
<td>-0.4718</td>
<td>-0.4684</td>
<td>0.0781</td>
<td>6.0376</td>
</tr>
<tr>
<td>Reliability = 0.829</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical turbulence</td>
<td>tunc_6</td>
<td>0.9686</td>
<td>0.9707</td>
<td>0.0116</td>
<td>83.1780</td>
</tr>
<tr>
<td></td>
<td>tunc_7</td>
<td>0.8059</td>
<td>0.7869</td>
<td>0.0595</td>
<td>13.5387</td>
</tr>
<tr>
<td>Reliability = 0.884</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Style of management</td>
<td>mgnt_1</td>
<td>0.6569</td>
<td>0.5675</td>
<td>0.2270</td>
<td>2.8933</td>
</tr>
<tr>
<td></td>
<td>mgnt_2</td>
<td>0.8299</td>
<td>0.7077</td>
<td>0.2162</td>
<td>3.8389</td>
</tr>
<tr>
<td></td>
<td>mgnt_3</td>
<td>0.8227</td>
<td>0.7045</td>
<td>0.2114</td>
<td>3.8915</td>
</tr>
<tr>
<td></td>
<td>mgnt_4</td>
<td>0.6248</td>
<td>0.5374</td>
<td>0.2762</td>
<td>2.2621</td>
</tr>
<tr>
<td></td>
<td>mgnt_5</td>
<td>0.6767</td>
<td>0.5933</td>
<td>0.2112</td>
<td>3.2036</td>
</tr>
<tr>
<td></td>
<td>mgnt_6</td>
<td>0.6139</td>
<td>0.5274</td>
<td>0.2292</td>
<td>2.6877</td>
</tr>
</tbody>
</table>

Constructs with only one indicator are excluded, both the loading and reliability are 1.0 automatically.
A rule of thumb is to reject loading scores that are smaller than 0.7 (original sample estimate), as that indicates that less than 50% of the indicators’ variance is due to the construct. However, exceptions can be made when the researcher has theoretical arguments for the importance of keeping the indicators, but loadings below 0.4-0.5 should never be accepted (Hulland, 1999). A few indicators, marked with bold format in the table above, were kept, despite slightly low loadings. The indicators in the uncertainty and venture characteristics constructs with loadings in the 0.58-0.7 range will be kept because of their central importance for the analysis, and because the low loading scores may be partly caused by intentional design considerations, as discussed in section 4.3.3. Indicators oorg_2RC, outc_6 and tunc_8 are nevertheless dropped from further analysis because their scores are unacceptably low.

The style of management items with low loadings are also excluded. These are not part of central predictor constructs, and they are not deliberately designed to be non-overlapping, in the same manner as the variables of e.g. uncertainty above. (The exclusion of these indicators had a minimal effect on the obtained structural coefficients.)

The scores for composite reliability are estimates of the convergent validity for each construct (i.e. similar to Cronbach’s alpha). However, another estimation of composite reliability must be made, now that some indicators have been removed. When re-running the test with inferior indicators removed, all constructs reach the required 0.7 level of composite reliability (see the table 49 below). Construct-level convergent validity is hence attained. For discriminant validity, constructs should share more variance with their indicators than with other constructs (Fornell & Larcker, 1981). Inspection shows that this is the case for the constructs at hand.

Table 49: Estimation of Convergent and Discriminant Validity, Final Measurement Models.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Composite reliability</th>
<th>AVE</th>
<th>Sqrt (AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market unfamiliarity</td>
<td>0.733</td>
<td>0.413</td>
<td>0.6427</td>
</tr>
<tr>
<td>Market turbulence</td>
<td>0.789</td>
<td>0.556</td>
<td>0.7457</td>
</tr>
<tr>
<td>Market development</td>
<td>0.716</td>
<td>0.562</td>
<td>0.7497</td>
</tr>
<tr>
<td>Product development</td>
<td>0.738</td>
<td>0.586</td>
<td>0.7655</td>
</tr>
<tr>
<td>Opportunity size</td>
<td>0.894</td>
<td>0.737</td>
<td>0.8585</td>
</tr>
<tr>
<td>Results</td>
<td>0.942</td>
<td>0.802</td>
<td>0.8955</td>
</tr>
<tr>
<td>Technical unfamiliarity</td>
<td>0.881</td>
<td>0.713</td>
<td>0.8444</td>
</tr>
<tr>
<td>Technical turbulence</td>
<td>0.883</td>
<td>0.793</td>
<td>0.8905</td>
</tr>
<tr>
<td>Style of management</td>
<td>0.872</td>
<td>0.774</td>
<td>0.8798</td>
</tr>
</tbody>
</table>

The square root of average variance explained (AVE) can be used as a test of discriminant validity. Discriminant validity describes the degree to which the operationalization dissimilar to other operationalizations it theoretically should dissimilar to. The square root of AVE should be higher than all construct-to-construct relationships, which it is here.
Structural Model Estimation

As in the previous regression analysis, it is reasonable to start by estimating a model with control constructs only. That way, the specific contribution of the predictor constructs can be evaluated. The control constructs explain 5.8% of the variance in outcome (measured as results). The variance explained in the predicted construct corresponds to the goodness-of-fit estimate in regression. However, the PLS method creates its estimates through the minimization of errors in all endogenous constructs. Therefore, no proper overall goodness-of-fit measure exists for models estimated with this method (Hulland, 1999). The variance explained is nevertheless meaningful as an indicator for evaluation of different alternative models within the same study.

The directions of influence are as expected, i.e. negative for lack of experience and positive for informal management. When adding the predictor constructs, the variance explained increases to 11.5%. All indicators turn out to have acceptable loadings and reliability (see t-scores in table 50 below). The resulting estimates for structural relationships are indicated in the following table, where β-values refer to the magnitude of the relationship, and are identical to the ones given in figure 33 below. The t-statistic for each relationship is indicated as well. t-values above 1.6445 indicate a 0.05 level of significance, and t-values of 2.327 indicate a 0.01 level of significance.

Table 50: Influence and Significance Tests of Relationships, t-statistics.

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Market unfamiliarity</th>
<th>Technical unfamiliarity</th>
<th>Opportunity size</th>
<th>Outcome (result)</th>
</tr>
</thead>
<tbody>
<tr>
<td>munf</td>
<td>β 0.163** t 2.7756</td>
<td>β 0.122* t 2.0056</td>
<td>β -0.173** t 2.5667</td>
<td>-0.122* t 1.6995</td>
</tr>
<tr>
<td>mtrub</td>
<td>β 0.397** t 7.2592</td>
<td>β 0.393** t 6.6840</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mdev</td>
<td>β -0.072 t 0.9621</td>
<td>β 0.022 t 0.3852</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pdev</td>
<td>β 0.072 t 0.9621</td>
<td>β 0.393** t 6.6840</td>
<td></td>
<td></td>
</tr>
<tr>
<td>opporg</td>
<td>β 0.072 t 1.1997</td>
<td>β -0.022 t 0.3852</td>
<td>β -0.173** t 2.5667</td>
<td></td>
</tr>
<tr>
<td>lgOrgSize</td>
<td>β 0.044 t 0.6922</td>
<td>β 0.028 t 0.3778</td>
<td></td>
<td></td>
</tr>
<tr>
<td>oppSize</td>
<td>β 0.208** t 3.3026</td>
<td>β -0.137* t 1.9558</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lowVExp</td>
<td>β 0.053 t 0.8351</td>
<td>β 0.028 t 0.3778</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tunf</td>
<td>β 0.170** t 2.5368</td>
<td>β 0.234** t 4.1801</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tturb</td>
<td>β 0.028 t 0.3778</td>
<td>β -0.137* t 1.9558</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mgmnt st,</td>
<td>β 0.164* t 2.1248</td>
<td>β 0.090 t 1.3520</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RASE</td>
<td>β 0.068 t 0.8669</td>
<td>β 0.063 t 0.8264</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry 2</td>
<td>β 0.053 t 0.7959</td>
<td>β -0.137* t 1.9558</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry 3</td>
<td>β 0.068 t 0.8669</td>
<td>β 0.063 t 0.8264</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry 4</td>
<td>β 0.053 t 0.7959</td>
<td>β -0.137* t 1.9558</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the 0.05 level (1-tailed).
** Significant at the 0.01 level (1-tailed).

When it comes to the uncertainty constructs, the results are similar to those gained by regression in chapter 4.3. However, opportunity origin, which was a significant predictor of uncertainty during regression, is not significant in the PLS results, possibly because of the removal of oorg_2RC in the previous analytical step. The coefficients suggest that the
dominant indicator for venture results is opportunity size, where a large size is positive for the outcome, contrary to expectations. Technical uncertainty appears to be unimportant for outcome, while market uncertainty has a negative effect (at the 0.05 level, one-tailed, significance). When illustrating SEM models, as in figure 33 below, constructs represented by squares are usually observed constructs, while latent constructs are represented by ovals.

Figure 33: Structural Model for Predicting Results, Including Obtained Coefficients.

Included in figure 33 above, is the relationship between market development and technical unfamiliarity, now significant at the 0.01 level (one-tailed). However, the magnitude of influence (0.122) is limited, compared to that of the other constructs that contribute to technical unfamiliarity.

For comparison: PLS predicts 25.1% of the variance in market uncertainty, while the regression analysis predicted 21.3%; and 29.9% of the variance in technical uncertainty, while 29.5% was predicted by regression.
Test with Survival/Termination as the Outcome Measure

Comparing with the survival/termination measure is important, since the result indicators are operationalized as outcome versus expectations. A large (small) effect of uncertainty on results may thus mean that uncertainty plays a substantial (small) role for the outcome of the venture, or that respondents are poor (good) at taking uncertainty into account when predicting outcome.

Survival/termination, on the other hand, is a more objective indicator of outcome, which is why it should be useful as a benchmark for the result estimations. Using survival/termination as the dependent construct gives a SEM model that explains 14.3% of the variance in outcome. The magnitude of the predictors’ influence changes as follows:

- The effect of market unfamiliarity gets stronger to -0.207, and reaches a 0.01 significance level.
- The effect of technical unfamiliarity increases to 0.039, but is still insignificant.
- The influence of opportunity size decreases to 0.126, and reaches a 0.05 level of significance.

These results suggest that respondents do take uncertainty into account for their result expectations, but that this effect is small compared to the overall effect of uncertainty. Noteworthy changes among the control constructs are:

- The influence from lack of experience gets stronger to -0.195, and reaches a 0.01 level of significance.
- The influence from RASE increase to 0.155, and reaches 0.01 level significance,
- The influence from informal management decreases to 0.143, but maintains its 0.05 level of significance.

In essence, while the main tendencies are largely the same, the predictive power of the main constructs increase when using this outcome measure, as does the predictive power of the model itself. Among the control constructs, one can observe that the importance of process issues, such as informal management, decreases, while the importance of getting financial resources increases. A figure including both sets of coefficients can be found in appendix 9.

4.4.5 Outcome Prediction Through Cluster Categories

In appendix 8, it is suggested that industry and firm size matter for the extent of, and dealing with, venturing obstacles. Firm size was available as a scale variable, and could be included in the SEM estimations above. Similarly, industry differences were controlled for through dummy variables. However, as mentioned in section 4.2, it is interesting to see if cluster differences are related to venture outcome.
Cluster Patterns

As the clusters represent signifying differences between ventures, it seemed plausible that these differences also related to more and less appropriate ways of pursuing business development. If that is generally the case, it would be detectable through between-cluster differences in outcome. To test this possibility, I analyzed the sample for differences in means for the outcome variables, with cluster as the grouping variable (see figure 34 below).

![Outcome: Survival/Termination](image)

**Figure 34:** Outcome (Survival/termination Dummy) in Different Clusters.

Comparison of the obtained mean values, with results calculated as a factor score and survival/termination as a dummy, revealed that the largest between-cluster difference is that ventures in *limited market expansion* ventures (cluster 2), appears to fail more often than *technology-driven product extension* ventures (cluster 4). However, this difference is not statistically significant. The clusters are therefore not useful for outcome prediction.

4.4.6 Summary of Results

Both outcome measures have limitations. The results measure is limited, since it captures only how well the venture turned out in comparison with expectations. While this makes objective comparisons between different ventures impossible, it at least mitigates the problem of the same outcome potentially having different meanings for different firms. The survival/termination measure, on the other hand, has limited variance as its range includes only two values. However, estimating the structural model twice, using both measures, improves the insight into the link between venture characteristics and outcome, as the obtained relationship patterns are largely consistent.
SEM findings confirm that market and product development gives rise to the corresponding types of uncertainty. But, even though uncertainty may be a problem in the venture process, it seems as if its impact on outcome is small. In addition, it is only market uncertainty that has a negative effect on outcome. In conclusion:

- Hypothesis 4 was supported, while hypothesis 5 was rejected.

Hypothesis 6 is based on the suggestion that large opportunities are more demanding to pursue (Sathe, 2003), and may at the same time attract more competitors, which increases the exploitation challenges (Christiansen et al., 1998). Ventures targeting large opportunities may therefore fail more often. Measuring outcome as success/termination (based on Sathe’s argument) generated a significant positive relationship score of 0.126 contradicting this hypothesis. Measuring outcome as result versus expectations (based on the arguments of Christiansen and his colleagues) increases this score to 0.208.

- Hypothesis 6 was therefore rejected.

Hypothesis 9, suggests that internal opportunities tend to be larger than external opportunities. This proposition builds on Alsos & Kaikkonen’s (2004) and Block & MacMillan’s (1993) research, but has not occurred in many other places of the reviewed literature. However, the results of the SEM analysis suggest the opposite relationship between internal origin and opportunity size. Again, results may be suffering from the exclusion of one of the origin variables. Nevertheless, hypothesis 9 cannot be accepted based on this study.

- Hypothesis 9 was therefore rejected.

The only constructs that have a significant impact on both types of outcome are venture experience, style of management, opportunity size, and market uncertainty.

In the next chapter, there will be further discussions regarding the results obtained in sections 4.1, 4.2, 4.3, and 4.4.
Analysis and Results
5 DISCUSSION

A reliable overview of the internal development activities in the population is provided in appendix 8, below. It demonstrates that activity levels in the different industries are largely similar, and that differences between firm size classes, regarding tendencies in the types of development activities, are few and small.

The purpose of this study is to uncover the existence and effects of motives for corporate ventures. It has been broken down and pursued through the investigation of four research questions. This chapter summarizes my findings and relates them to the research questions and the study’s purpose. Figure 35 below is an overview of the obtained results and, at the same time, of the content of sections 5.1 to 5.4.

![Diagram of motives, venture characteristics, execution difficulties, and outcome with arrows indicating relationships between categories.]

**Figure 35:** Overview of Findings.
The first section (5.1) will discuss the identified motive dimensions. It will also propose a way of presenting motive combinations that permits the simultaneous illustration of all motive dimensions, as well as their configuration, so that the reasons for a venture and the corresponding strategic concerns can be understood more holistically. Section 5.2 examines the consequences of motives, both in terms of correlations to venture characteristics (indicated by dotted lines in figure 35 above) and through the motive configurations behind common venture types (clusters). The chapter then continues with discussions regarding the results of tested hypotheses, in sections 5.3 and 5.4 (the supported hypotheses are included in figure 35 above). This discussion is then followed by presentations of implications (5.5), limitations (5.6), and a few concluding remarks (5.7).

5.1 **RQ1: What are the Motives Behind SME:s’ Corporate Ventures?**

Analyzing links between the fields of entrepreneurship and strategy provide important opportunities to gain information about the parallel foci and meaning of the phenomena, which, in turn, will help establish the fields as academic disciplines (Hitt & Ireland, 2000). As venture motives have received little systematic investigation so far, a move away from traditional deductive research approaches and towards exploration was necessary for the first two research questions (cf. Carrier, 1996).

The phone survey confirmed that ventures can be started for both offensive and defensive reasons. Specifically, declining prices as a result of competition, as well as direct customer requests, were frequently mentioned as drivers of business development (see appendix 8).

The final survey enabled collection of more detailed motive data. It confirmed that strategic motives, rather than personal motives, dominate venture selection decisions. Further, the motive data could be summarized into a four factors that were reasonably stable over size and industry classes. Given the validity discussion in section 4.1.5, it seems that these four factors do represent different strategic issues that influenced the venture selection decisions. The four factors can therefore be interpreted as motive dimensions that illustrate the role the venture plays as a means for managers when dealing with their strategic situation. Two of these dimensions describe the orientation of the venture, in terms of the area in which managers intended the venture to have effect:

- **Business orientation** refers to the extent of business-related intentions as the primary purpose of the venture, particularly in the form of economic and competitive objectives. Conversely, in the event ventures receive low scores on this factor, it is a sign that other purposes have been more decisive for venture selection, including personal reasons and resource utilization.

- **Competence orientation** refers to the extent that the venture’s purpose was to acquire new knowledge or to develop new competences. The factor solution suggests that competence acquisition is not a business/non-business consideration; instead it is a separate purpose for venturing. However, its internal loading pattern suggests
that it has a small negative correlation to business orientation, possibly reflecting a trade-off between short-term and long-term venture intentions.

The other two dimensions describe the venture’s motive in terms of the nature of interplay between the venture and the firm’s strategic situation, illustrating the character of the strategic move:

- *Posture* refers to the venture as an attempt to confront or avoid circumstances, and indicates whether it is a offensive or defensive strategic move. The factor solution suggests that posture does reflect the firm’s attitude towards confrontation, and that the dimension is somewhat associated with competition issues. However, one of the items regarding aggressiveness in the pursuit of opportunity did not load on this factor, contrary to expectations.

- *Adaptive style* allows for distinguishing between proactive and reactive ventures. Theoretical arguments are available for both types of venture, but empirical studies rarely include both possibilities. The factor solution indicates that this dimension is somewhat associated with opportunity orientation and (possibly) economic purposes.

Even though each venture occurs in a unique situation, and, for that reason, can be expected to have a unique configuration of specific motives, the findings indicate that there are identifiable patterns in the variation of motives. RQ1, however, asks what the motives for SME:s' ventures are. The answer provided by the study would be that the motive for a venture is a case-specific configuration of posture, adaptive style, and orientation, where orientation refers to the extent of business and competence development intentions.

While it may sometimes be useful to consider the dimensions individually, for instance when testing hypotheses about them, there is a risk of missing important effects caused by the combinations of several dimensions occurring together. As SME managers are likely to be motivated by a multitude of issues at any given time, one should avoid premature isolation of motive dimensions (Crick, 2007). Instead, I argue that motives are best presented in a form that preserves a holistic, yet structured, view of the underlying dimensions. To facilitate an easy interpretation of motive configurations I propose a descriptive model called motive profile. The motive profile is obtained by entering, within the brackets below, how the venture distinguishes itself in each dimension:

- The venture is a [adaptive style] and [posture] action aimed at achieving [orientation] purposes.

The motive profile: i) makes it possible to compare motive configurations occurring in different situations or groups of firms; and ii) allows for understandable graphic representations. For the graphic representation (see example below) the averages of motive factor scores can provide a baseline for comparison (i.e. the factor scores are based on the variance in the full sample, and then standardized with the mean = 0 and the standard deviation = 1.)
I choose to base my graphic representations on the adaptive style and posture dimensions, and to use these dimensions to position the venture(s) in terms of the strategic nature of the pursuit. The orientation dimensions can then be illustrated by inserted mini bar-charts next to this position. The ventures in the upper left field in figure 36 below hence have the profile: reactive and offensive actions aimed at achieving business oriented purposes.

Profiling is merely a way of presenting the four dimensions together, in a comprehensible form that facilitates comparison between empirical categories. Other researchers may prefer other forms of representation. Regardless, the combination of orientation, posture, and adaptive style provide for the mapping of motives in a far more precise manner than the coarse and partly indistinct opportunity-threat categories. When organized as a profile, the motive configurations of cases or groups of cases become easier to illustrate and compare. The motive profiles and the graphical representation will therefore be a help in answering the next research question.
5.2 **RQ2: How are Motives Linked to the Characteristics of the Pursued Ventures?**

With the motive dimensions established, one can begin examining why SME top managers make certain strategic choices and not others (cf. Borch et al., 1999). The analysis in section 4.2 uncovered correlation patterns that shows that motives do have an influence on venture characteristics, confirming that motives matter for venture selection. According to these patterns it appears that:

- **Business orientation** is negatively correlated with **internal origin** and **market development**, suggesting that firms pursue market development for other purposes than strengthening the economic and competitive position. The negative link to internal origin is possibly caused by overcapacity being an internal cause of venturing that is included in the negative side of business orientation factor.

- **Competence orientation** is correlated with **product development** and **internal origin**, implying that the triggers for competence development often concern internal phenomena, and that learning is pursued through the development and commercialization of new products. This is coherent with the proposition that aspirations to acquire new knowledge leads internal impulses for growth (Penrose, 1968).

- **(Offensive) posture** is negatively related to **market development**, suggesting that primarily defensive motives lead to the pursuit of new markets. (The cluster analysis suggests that it is primarily the diversification ventures that are defensive, see below).

- **(Proactive) adaptive style** is correlated with **opportunity size**, indicating that proactiveness is associated with the pursuit of larger opportunities. (There is also a 0.1 level significant correlation with market development.)

These correlations illustrate the different links between individual motive dimensions and venture characteristics. This may be useful for further research attempts at understanding the effects of motives, through the forming of empirically informed hypotheses and the seeking of more elaborate explanations for the patterns. They also facilitate the interpretation of motive profiles below.

However, this study primarily targets the link to strategic considerations, which tend to occur as a set of conditions rather than single independent issues. For this purpose, inspection of the motive profile for each cluster provides better insight into how motives relate to typical courses of action, selected through venture decisions. The following table summarizes the typical motives for venture selection for each cluster, thereby disclosing the strategic logic of action for the ventures, in terms of how they are measures for achieving strategic ends:
### Table 51: Motive Profiles for Venture Clusters.

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Adaptive style</th>
<th>Posture</th>
<th>Orientation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Diversification</td>
<td>Proactive</td>
<td>Defensive</td>
<td>Competence</td>
<td>Market leaders?</td>
</tr>
<tr>
<td>2: Limited market expansion</td>
<td>Proactive</td>
<td>(Offensive)</td>
<td>(Business&lt;sup&gt;a&lt;/sup&gt;)</td>
<td>Heterogeneous objectives?</td>
</tr>
<tr>
<td>3: Market-driven product extension</td>
<td>(Reactive)</td>
<td>(Offensive)</td>
<td>Business</td>
<td>Contract manufacturers? Product development due to customer order?</td>
</tr>
<tr>
<td>4: Technology-driven product development</td>
<td>Reactive</td>
<td>Offensive</td>
<td>Competence</td>
<td>Market followers?</td>
</tr>
</tbody>
</table>

Parenthesis indicates that the dimension distinguishes the cluster from some other clusters, but not from the average venture (at least 0.1 level one-tailed t-test).

<sup>a</sup> This orientation score becomes significantly different from cluster 4, if two outliers are removed.

### Figure 37: Motive Profiles for Venture Clusters, Graphic Presentation.

When inspecting the cluster positions and the inserted mini-charts it becomes clear that no cluster has a motive profile that is identical to another cluster’s profile. Instead, a number of interesting observations can be made.
Discussion

First, the two clusters that primarily rely on product development are reactive. This implies that small- and medium-sized manufacturing firms respond to circumstances by development of new products (or substantially changed versions of their current products). Moreover, while these two clusters’ postures are close to the sample average, they do not appear to be particularly defensive. Observations during the telephone interviews fit this pattern. Many of the firms seem to have experienced increased competition (partly from production in low-wage countries) that created business challenges. When asked, the respondents typically claimed that “development efforts”, “being innovative”, and “improving products”, were actions taken to overcome such challenges. Rather than reducing prices (more than in the short run), they felt that improving the value of their offerings was the only feasible way to stay competitive. Relating phone survey information to the motive profiles of the reactive clusters leads to the following observations:

- According to interview data (see appendix 8), development of new or improved products was frequently initiated on more or less direct request of customers, an observation that fits well with cluster 3, market-driven product extensions. This is described in section 4.2.7, where cluster 3 ventures were interpreted as business oriented responses to market pull. Demanding customers are an important external factor for innovation and business creation (Sathe, 2003) that should definitely not be neglected when studying firms’ strategic development patterns. The fact that cluster 3 is substantially larger in terms of number of ventures compared to the other clusters, clearly underscores the importance of the customers.

- If a firm perceives a need for change and tries to react to it, but finds that current competences are inadequate (for reaching short- or long-term objectives), the firm may be forced to undertake larger product development efforts for the purpose of learning (possible preparing for entry in other business areas later on). This pattern fits with the motives for technology-driven product development ventures (cluster 4). As these appear to be responses to development in the competitive situation, concern product development, and are reactive (see section 4.2.7). Possibly, they are possibly followers’ attempts to catch up with the rest of the industry (cf. Covin et al., 2003).

Second, the two clusters that include market development are on the proactive, rather than reactive, side, coherent with Crick’s (2007) study of SME:s’ internationalization efforts. For instance, cluster 2 has the least distinct profile but appears to mainly involve market development ventures (that probably have a slightly stronger business orientation than indicated in figure 37 above). Proactiveness implies that ventures are triggered by anticipated circumstances, rather than present circumstances. In addition, proactiveness is positively correlated to opportunity size, as mentioned above. It therefore seems that under a need for quick action (reactive ventures) the investigated firms seek solutions within their competence as manufacturers, through the creation of new or improved products (cluster 2 and 3). More forward-thinking venture decisions, on the other hand,

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69 Another explanation that would lead to the same observed pattern is that the firms improve the value of their offering based on inspiration from competitors, since both customers and competitors represent external opportunity origins. However, this was not a recurring explanation in the telephone interviews.
Discussion

appear to be influenced by managers’ envisage of relatively large market opportunities (Miller & Friesen, 1982; Mintzberg, 1973). Johnson & Scholes (1997) suggest that limited market extension is suitable for firms in markets with little or no growth. Similarly, Crick (2007) found that reactive market development ventures were associated with saturated local markets or declining domestic sales. It may therefore be that the ventures in cluster 2 consists of market development attempts, carried out by firms who actively seek opportunities (Dahlqvist, 2007) for the purpose of expanding outside their current low-growth markets.

Third, the only group of ventures that is decisively defensive is the diversification cluster (cluster 1). This is in direct conflict with Collier’s (1996) prediction: That innovative SME defenders primarily seek innovations that increase performance within current markets or products, while prospectors seek to venture into new product-markets. Jolly & Kayama’s (1990) idea, on the other hand, that diversification can be a defensive move fits better with the motive profile for this cluster. They propose that diversification enables firms to leave maturing industries. To do that, firms need to both develop a new product (new industry) and undertake market development (getting the new product to its market), coherent with the interpretation of cluster 1. However, an orientation balance towards business intentions would imply that the available competence base is adequate, while an orientation balance towards competence acquisition would imply the opposite. The typical venture 1 firms follow the latter pattern, suggesting that they proactively pursue competence development through diversification. One may therefore suspect that the venture is used strategically as a learning tool (Covin & Miles, 2007). In addition, while generally unimportant, personal, and non-business intentions do play a small role for venture selection in this cluster. One can speculate that a desire for personal learning and development may be a reason in some of the cases in cluster 1, while the majority of the ventures are contingent on strong defensive motives.

Fourth, previous research has paid considerable attention to the link between growth and entrepreneurship (e.g. Hitt & Duane, 2000; Wiklund, 1998). Growth motives are coherent with a strategic build mission (Gupta & Govindarajan, 1984), possibly leading to corporate ventures for the purpose of changing or creating businesses, with offensive and business-oriented motives. Based on the telephone interviews, there is no reason to contest the assumption that growth intentions lead to the undertaking of venture attempts. However, even if such attempts exist in the sample (which they probably do), they are not forming a separate cluster. The conclusion is that, to the extent ventures are growth oriented, this attribute had less differentiating power than other characteristics.

Finally, I find it surprising that competence oriented ventures do not distinguish themselves as proactive. Learning takes time, and is in this sample partly in conflict with short-term business objectives, which is why it makes sense to associate competence orientation with forward-thinking. However, this was not reflected in the findings. Additional research will be needed to answer why.
5.3 RQ3: What Is the Impact of Venture Characteristics on Venture Uncertainty?

The confirmation and rejection of parts of previous theory, represented by the hypotheses, narrows down and identifies critical aspects behind venture outcome. An important result of the analytical work with RQ3 was that it led to an update of the research model. It was found that modeling turbulence as a cause, rather than an element, of uncertainty generated better predictions. The subsequent findings were essentially that:

- Market uncertainty (unfamiliarity) is related to market development, market turbulence, and internal opportunity origin, largely as expected. Theory proposes causal relationships between these constructs, but the actual direction of causality cannot be confirmed by the methods used here. Interestingly, the extent of market development had a far stronger relation to uncertainty than turbulence had.

- Technical uncertainty is, in a similar manner, associated with the extent of product development efforts required for the venture. More unexpectedly, market development plays an almost equally large role for technical uncertainty, even though theory fails to explain why. In comparison to the case of market uncertainty, it appears that for technical issues, turbulence has a relatively strong link to uncertainty.

The following table summarizes the findings in terms of formal hypothesis-testing:

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 1</td>
<td>Market development is associated with market uncertainty</td>
</tr>
<tr>
<td>Hypothesis 2</td>
<td>Product development is associated with technical uncertainty.</td>
</tr>
<tr>
<td>Hypothesis 3</td>
<td>Product development is associated with market uncertainty.</td>
</tr>
<tr>
<td>Hypothesis 7</td>
<td>Opportunities of external origin are primarily associated with technical uncertainty</td>
</tr>
<tr>
<td>Hypothesis 8</td>
<td>Opportunities of internal origin are primarily associated with market uncertainty.</td>
</tr>
</tbody>
</table>

An unexpected negative influence of product development on market unfamiliarity emerged. To the extent that this result represents a true relationship, it suggests that the firms engage in highly innovative ventures only when there is a low market uncertainty and, thus, low perceived market risk. However, evidence was inconclusive on this point.

Regarding the control constructs, there are two points that are worth mentioning here. First, no relationship between opportunity size and uncertainty could be observed. This means that, to the extent that opportunity size is related to outcome (which turned out to be a positive relationship, in contrast to hypothesis 6, see below), it is not because it influences uncertainty levels. Second, previous business development experience seems to have a significant mitigating effect on perceived market uncertainty, but not on perceived technical uncertainty. As it influences uncertainty levels, it will have implications for outcome, which will be further specified in section 5.5.
In summary, the link between direction and extent of business development and perceived uncertainty is confirmed, but appears to be overstated in previous research, since the main causes of uncertainty are outside the examined models (c.f. Roberts & Berry, 1985). In other words, there is substantial variance (or difference in uncertainty) that is not linearly related to the measured venture characteristics. A related issue is that the data seems to be rather scattered around the regression lines, leading to large residuals and low $R^2$ values. The link to uncertainty thus exists, but in light of my results it appears to be a question of tendency, rather than a strong and direct causal mechanism.

5.4 RQ4: What Is the Impact of Venture Characteristics and Uncertainty on Venture Outcome?

As indicated in section 4.2, I evaluated whether the venture clusters were useful for outcome prediction (see section 4.4.5). This was not the case, which implies that none of them represent generally superior venture choices, and that judgment of situation-specific circumstances may be as good an approach to selection as any other.

The main findings regarding venture outcome were therefore derived from the analysis of hypotheses. Generally, the obtained SEM results support the hypotheses based on the first part of Roberts & Meyer’s (1985) claim: That ventures are associated with uncertainty, and that the type and extent of uncertainty depend on both the distance and direction of business development. However, the second part of their proposal, i.e. that uncertainty is an important cause of failure, did not receive overwhelming support.

The low level of explained outcome variance further suggests that the success or failure of ventures hinges only to a small degree on the constructs investigated. However, it should be noted that the investigated firms generally appear to avoid uncertainty, as indicated by the scatterplot of summarized unfamiliarity scores below. The small number of high uncertainty ventures may cause an underestimation of the effect of uncertainty. Moreover, the regressions in the previous chapter suggest that there may be an interaction effect, where firms pursue ambitious product development primarily when the market for the product is rather certain. That would imply that top managers are in some sense aware of uncertainty, and that they make trade-offs for the purpose of minimizing it, when selecting ventures. However, additional research would be needed in order to confirm this explanation.
The findings give rise to the question why there is such a limited relationship between uncertainty and outcome? This issue will be discussed at the end of this section. The obtained hypothesis-testing results are summarized below:

Table 53: Results for Research Question 4.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 4</td>
<td>Market uncertainty has a negative influence on outcome.</td>
</tr>
<tr>
<td>Hypothesis 5</td>
<td>Technical uncertainty has a negative influence on outcome.</td>
</tr>
<tr>
<td>Hypothesis 6</td>
<td>Opportunity size has a negative influence on outcome (survival/failure) of the venture.</td>
</tr>
<tr>
<td>Hypothesis 9</td>
<td>Opportunities of internal origin are larger than opportunities of external origin.</td>
</tr>
</tbody>
</table>

The results move the field forward beyond previous research regarding venture outcome. Sorrentino & Williams’ (1995) study found no link between distance and outcome. However, their inability to find such a link is likely to be caused by their narrower focus: To study product development ventures only. Similarly, Block & MacMillan (1993) and Porter (1987) claim that product/technology distance was unrelated to performance, while von Hippel (1997), on the other hand, explicitly ascribe success to access to market knowledge, and finds that pursuing new customer groups is strongly related to venture failure. The current study, investigating a larger firm- and venture-level sample, confirms that product development distance is unimportant, but also confirms a small negative effect of market development distance and market uncertainty.
Moreover, the current study is also broader than previous research, as it also tests for the influence of opportunity size and origin, and a number of control constructs. In particular, opportunity size appears to be an interesting parameter. It has a relatively strong and positive relation to outcome when using the results-versus-expectations measure\(^\text{70}\). Opportunity size can therefore be used to predict better-than-expected outcome. The pattern is possibly partly caused by the respondents believing that it is more difficult to capture large opportunities, therefore having lower expectations on the results. However, a small effect still remained when using the more objective survival/termination measure.

Among the control constructs, one can observe that the importance of process issues, such as informal management, decreases, while the importance of getting financial resources increases, when using a the more objective outcome measure. This is potentially important, since most venture-level research that emphasize managerial aspects in proximity to the venture process tends to be qualitative (and therefore subjective).

Figure 39 below illustrates the results by depicting all hypothesized relationships (left) and confirmed relationships (right).

\[\text{Figure 39: Proposed and Supported Relationships.}\]

While the relative amount of predicted outcome may appear limited, the important thing is that it is significant and related to relevant predictor variables. Many areas of academic management knowledge are formed by such small but solid contributions that add up to a better overall understanding of the phenomenon. Obtaining significant knowledge contributions, regardless of size, is particularly important when studying things that are unlikely to ever come anywhere near complete prediction, like the outcome of corporate ventures. The following section discusses some of the problems with outcome prediction.

\(^{70}\) Opportunity size nevertheless appears to be of limited importance for outcome measured as survival or termination, since the magnitude of influence is relatively small in this case.


5.4.1 Comments Regarding the Prediction of Venture Outcome

The constructs included in the structural model (see figure 33 on page 148) predict only a seemingly small part of the variance in outcome. On the other hand, expecting a very high explanatory power of this model would be unrealistic, not least since the predictors primarily concern the conditions at the time of venture selection, while the execution parts of the venture process is largely left outside the model. The small part that is explained may be important though, especially if much of the remaining variance is due to case specific issues that causes noise in the data. To provide some perspective, the following paragraphs discuss two additional issues that could influence the extent to which outcome may be predicted. The first issue is the large number of possible causes of failure, which supposedly influence SME:s’ ventures. The second issue concerns the measurements and sample used in the study.

Large Number of Failure Causes

A plausible explanation for the limited explained variance is that there are many reasons why an entrepreneurial venture may fail, including mismatch between opportunity and capabilities, incompetence, improper launch strategies, improper use of brands, greed, and plain bad luck (Cooper, 1983; Drucker, 1985). Success rates therefore vary substantially from one company to another (Block & MacMillan, 1993; Porter, 1987). When it comes to SME:s, Faber (1999) proposes that due to their narrower scope of business, the business development distance tend to be larger than for large firms (all else equal), making SME ventures more vulnerable. In addition, SME:s may be more sensitive as a result of limited capabilities and less experience and/or resources. However, organizational size (logarithm) was included in the SEM analysis and did not have a significant influence on outcome. It would therefore seem that SME:s are able to find ways around their liability of smallness, at least when it comes to their corporate ventures.

Regarding the successful completion of the venture process, recent research proposes that it is to be seen as a sequence of events in a path-dependent process, and that it is especially sensitive to lack of top management commitment and any stage (Burgers & Van den Bosch, 2006). Interestingly, Burgelman (1984b) proposes that top manager short-sightedness, in combination with the internal persuasion process, lead to unrealistic expectation on the speed of growth of the new business. This, in turn, gives rise to a premature emphasis on commercialization that leads to (perceived) failures, unrelated to uncertainty. The negative impact of unrealistic expectations was confirmed by MacMillan et al. (1986), who also mention the problem of lack of integration between venture and mainstream business, putting the venture into difficulties. Faber (1999) mentions a related problem in smaller firms, where the limited availability of resources may lead to problems for the venture, as it has to compete with current business for resources and managerial attention. Such competition may even lead to additional integration problems because of hostility from main business managers.
Discussion

To the extent such reasons could have been operationalized and measured there can be a specification error in the current model, in terms of relevant constructs being overlooked (Hair et al., 1998). The problem is that since these potential reasons were not measured, it cannot be verified if their individual importance is greater or smaller than that of uncertainty, management style, and venture experience. However, even though the focus of this research project is on venture selection, not execution, one need to acknowledge that several important contextual issues were included as control constructs. Given the modest amount of variance explained by all these issues, one may suspect that the amount of case-specific failure causes is large. This would means that a substantial portion of the unexplained variance is unsystematic, constituting noise in the measures.

Measures and Sample

It is also possible that the limited variance in the predictor constructs may have influenced the coefficients and significance levels of uncertainty’s influence on outcome. Because of the firms’ general tendency to engage in low uncertainty ventures, the representation of (theoretically possible) alternatives is uneven. This tendency introduces skewness in the indicators, which could have an effect on the generated estimates, even though PLS is more robust in this respect than some other methods (Chin, 1998). In other words, the strength of the relationship between uncertainty and outcome may be understated due to the limited variance in uncertainty in the sample.

Next, let us turn the attention to the study’s implications.

5.5 Implications and Future Research

The descriptive overview in appendix 8 demonstrates that corporate entrepreneurship is not an exception – almost every firm in the sample has done internal development efforts over the last 5-year period. In other words, manufacturing SME:s do not need to be persuaded to be entrepreneurial – they already are. Corporate entrepreneurship can hence not be viewed as signifying some form of superiority in this population. Rather, it is a typical pattern of firm behavior. Maybe the time has come to shift attention from how firms can become more entrepreneurial (e.g. Sathe, 1988) towards explaining factors for success and failure, and the role played by corporate entrepreneurship in firms’ strategic development (e.g. Block & MacMillan, 1993; Guth & Ginsberg, 1990; Sathe, 2003). At the current stage, the field may benefit from research asking: i) how corporate entrepreneurship can be optimized rather than maximized; and ii) how different forms of corporate entrepreneurship (e.g. different types of ventures) are appropriate for different situations and purposes. Research targeting the first question has started to emerge (e.g. Covin & Slevin, 1991, 1989; Zahra, 1991; Zahra & Covin, 1995). This thesis is a start for going deeper into the second question and its main implications are summarized in the following sections:
5.5.1 Implications for Research

This study has three important theoretical implications and four important methodological implications. I will start by presenting some theoretical implications.

- First, the study tells us a number of things about the strategic role played by corporate ventures, through the identification of motive dimensions, the most important being: i) that strategic motives do matter for venture selection; ii) that motives can be measured and examined as dimensions, where this study uses four such dimensions for the main general and specific motives; iii) that the configuration of these dimensions can be described as a motive profile indicating why a venture was undertaken; and iv) that the motive profile thereby relates ventures to strategy in a means-ends pattern.

- Second, this research confirms the link between perceived uncertainty and business development distance and direction. However, while market uncertainty has a significant negative effect on outcome, the assertions of Roberts & Berry (1985) regarding outcome could not be completely confirmed. Rather, this study corroborates Sorrentino & Williams’ (1995) notion that distance is of limited importance, even though their investigation used other indicators for relatedness. Due to the low variance in the independent variables, it is nevertheless too early to judge distance as being unimportant. In conclusion, while relatedness between business units in the corporate portfolio may be beneficial for firm performance (e.g. Bettis, 1982; Rumelt, 1982), this research project did not find strong evidence for relatedness as an important factor for success with the venture efforts. Moreover, to the extent that uncertainty does influence outcome, it is primarily market uncertainty that causes problems (cf. Cooper, 1983).

- Third, the limited previous research proposing opportunity origin and size as important factors in business development was not supported by the empirical evidence. Only one of three hypotheses about opportunities (Hypothesis 8: Opportunities of internal origin are primarily associated with market uncertainty) received support, and that support was rather weak. Nevertheless, given the early stage that research on the nature and effects of opportunities is in, the findings may be of value in guiding continued efforts in this area.

The first methodological implication is that the study proposes a systematic way of measuring venture motives that: i) relates corporate ventures to strategy; and ii) reveals non-trivial motive differences between venture groups. This research further proposes a way of organizing motive dimensions as motive profiles, for the facilitation of comparison and interpretation. The new measures are likely to be useful for future research, and I look forward to see how other researchers may use them and develop them further. In addition, it is possible that motive profiles may be used to investigate the antecedents of other strategic actions as well; they are not necessarily limited to the study of venture decisions.

71 Sorrentino & Williams (1995) measure synergies (shared plants, equipment, production personnel, sales force, advertising, sales promotion, and immediate customers), rather than distance/relatedness between the current and new business.
Discussion

The second methodological implication is that care must be taken when modeling and measuring sources of uncertainty, since some operationalizations include indicators that might represent causes of uncertainty, rather than uncertainty per se. In particular, this study benefited from the separation of uncertainty and turbulence, and the modeling of turbulence as a source of uncertainty. This improved the regression results in chapter 4.3.

Third, when measuring venture outcome one should consider the consequences of using different indicators. In this study, some observations were possible only because multiple outcome constructs were used. For instance, the importance of informal management appears to be great when using subjective outcome data, leading to a risk of overstating these issues if one, for instance, is primarily interested in policy implications. Researchers therefore need to carefully consider what kind of relationships they want to study, and discuss the impact of different indicator choices. A multiple-measure approach is recommendable, as it provides a basis for comparison and cross-validation.

Fourth, another implication is the confirmed usefulness of PLS as a method for estimating structural relationships in this field. This technique has recently started to find its way into management research, and seems appropriate for investigating many of the field’s complex and interrelated issues (Hulland, 1999).

5.5.2 Implications for Practice

There are also some implications that may be useful for practitioners. The first is the confirmation of a small but significant negative influence of market uncertainty on the ventures performance (Hypothesis 4). Interpreting the results may lead to the notion that it is not very important to avoid uncertainty. However, such conclusions would be premature, since the underlying sample contains few high-uncertainty ventures. Furthermore, even though it is possible that many ventures achieve poor results despite low uncertainty, there is no guarantee that uncertainty is unimportant for an individual venture. Ignoring the significant factors (market uncertainty, management, and venture experience) will make it unnecessarily difficult to succeed with venture attempts72.

72 Instead, practitioners may benefit from the following normative suggestions:

- Prioritizing opportunities with external origin for venture execution could be a way to avoid the most risky ventures. Especially since it seems that ventures that originate internally are not larger than the external ones, in contrast to expectations.
- Another way of limiting market uncertainty is to take smaller steps in market development (for instance by adjacency moves, e.g. Zook, 2001).
- Repeated interaction with the customers during linking activities is one way to systematically deal with market uncertainty (Cooper, 1983, see section 2.3.1). This may help the firm to ensure that the outcome of technical development fits what is valued by the prospective buyer.
- MacMillan et al. (1986) and Roberts & Berry (1985), on the other hand, propose that firms should opt for joint ventures for difficult business development efforts, especially if the firm lacks experience.
- Lack of experience creates a dilemma for practitioners, since they cannot make themselves more experienced without actually starting the venture, and consequently risk failure due to lack of available experience. However, venture experience is partly an obtainable resource. Experienced people may be hired and consulting services may be bought, facilitating both the start of the venture and the resulting accumulation of further venture experience.
Venture characteristics do have a larger influence on outcome than, for instance, technical and market turbulence. However, overall it may be appropriate to base venture selection primarily on corporate level analysis, rather than relatedness considerations (as proposed by Sorrentino & Williams, 1995).

Venture experience is another important issue, since it has both a direct and an indirect influence on outcome. The indirect influence is due to the mitigating effect it has on perceived market uncertainty, which in turn affects outcome. The double influence makes experience a promising factor to pursue for managers who wish to increase the probability of venture success.

A positive effect of proactiveness, revealed by the present study, is that it is linked to the pursuit of larger opportunities, which in turn has a positive relationship with ventures’ outcome. The findings generally show that there is no need for practitioners to shy an opportunity because it appears large.

Regarding development strategy, this study confirms the existence of competence orientation in venture motives, but does not link it to proactiveness. Burgelman (1984b), on the other hand, advocates proactiveness, and suggests that it can be attained though the formulation of a long-term development strategy, supported by a resource generation and allocation strategy. Similar proposals were made by Normann (1977), who also points out that the firm’s development process is path-dependent, which makes proactive management crucial for long-term survival. Since economic and competition issues are likely to already be included in managers’ concerns, and in existing corporate and business strategies, it seems appropriate to emphasize the acquisition of knowledge resources and the positioning for future opportunities in development strategies (Narayanan et al., 2006; Noda & Bower, 1996; Norman, 1977).

### 5.5.3 Policy Implications

This research project did not have the ambition to generate policy implications. However, it nevertheless uncovered some information that may be of interest to policy-makers.

- One interesting finding is that SME:s’ corporate ventures greatly outnumber the amount of independent start-ups, the former being more than thirty times more common than the latter (a rough estimate, see appendix 8). This may obviously be an important issue when forming policies for stimulating economic development. (It should be noted that employment effects may follow different patterns).

- Another interesting result is that larger SME:s make more development attempts than smaller SME:s (appendix 8). Policies could perhaps be formulated for the specific purpose of supporting small SME:s’ business development efforts. In that case, policy makers should consider the double impact of venture experience on outcome, and include measures that increase the availability of venture experience.

- Finally, policy makers may be interested in the detail that R&D expenditure was not only unrelated to venture activity, but also uncorrelated to business growth (appendix 8). This implies that polices aiming at stimulating SME business growth
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through supporting or subsidizing R&D, such as VINNOVA’s Research and Growth Program (Edling, Hermansson, Nilsson & Nordborg, 2007), cannot have high hopes for success unless they are applied selectively.

5.5.4 Future Research

One of the purposes of doing exploratory research is the identification of interesting issues and suitable starting points for further research. While this project has begun to deal with the issue of venture motives, and identified some links between ventures and strategy literature, much remains to be done.

Additional testing and refinement of the motive instrument and the motive profiles is required, in similar samples as well as in other settings, both when it comes to firm size, industries, and type of strategic decisions. It is also possible that the motive categories can be extended to include further general and specific motives. More in-depth examination of the categories themselves should also be conducted, in order to confirm and refine the motives and their effect in strategic decision-making.

Similarly, the venture selection process itself is a potentially fruitful research area. In this study, the internal mechanisms of selection were not investigated at all. Therefore, the nature of manager’s reasoning and, for instance, group effects, can not be verified. Future investigations on this point could perhaps take advantage of prior research on psychological and cognitive elements in venture capitalist’s selection of ventures, and identify similarities as well as differences. Gunter McGrath’s (1999) theories appear to be commensurable with such a study, as it proposes that ventures decisions can be analogous to real-options, in that small initial investments are made to open a number of possible investment alternatives, that are exploited only when conditions are favourable. It is also quite possible that research on venture selection, combined with further investigations of motives, could benefit from effectuation theory, as it suggests that entrepreneurs start the selection processes based on their available means (knowledge etcetera), and then choose among different attainable effects based on affordable-loss reasoning (Sarasvathy, 2001). Such research would most likely also benefit from Sathe’s (2003) work on external and internal factors for new business creation in established firms, as it includes both driving and hindering influences.

The findings regarding venture selection motives, in this study, indicate a need for new instruments for measuring corporate entrepreneurship at the firm level. In particular, the available instruments, EM and EO, seem oblivious to the possibility of defensive corporate entrepreneurship, and entrepreneurship as reactions to external issues of strategic importance. Such new instruments could test and confirm the relevance of constructs in the abovementioned instruments, and verify to what extent they are actually related to corporate entrepreneurship activities.

A related area that is of great importance, but that has yet received little scholarly attention in the entrepreneurship field, is how firms can develop their business through the introduction of services. Additional research on how the introduction of services constitutes strategic development options, and how they relate to corporate entrepreneurship, is
desired, since this issue is increasing in importance for both service firms and the services introduced by manufacturing firms (Berggren & Bergkvist, 2006). Taking motives into consideration may reveal how service, product, and market development differ from, and complement, each other as strategic alternatives.

5.6 Limitations

Since the literature review in chapter 1 proposes that SME:s are likely to be dissimilar to larger firms in terms of reasons and processes for corporate entrepreneurship, the findings of this study cannot be extended to large-firm contexts unless it is corroborated by additional research.

Further, a general limitation when using a retrospective approach is the respondent’s ability to accurately recall previous events. The time frame of five years hopefully limited that problem, although it is sometimes difficult to remember details about what happened only a few days ago (for instance when you are writing a PhD thesis).

The remainder of this section discusses possible sources of bias. Actions taken in attempts to minimize these types of problems are mentioned in section 3.3. For survey-based research, the most common types of bias are survival bias, non-response bias, and instrument bias.

5.6.1 Regarding Survival Bias

This study investigates venture attempts and asked respondents to report all kinds of ventures: successes, failures, and anything in between. The intention with this instruction was to mitigate survival bias related to failures during the venture execution. However, researching venture attempts does allow for survival bias in the venture selection process. In other words, the motives and characteristics of selected ventures cannot be compared to the characteristics of the initiatives that were rejected. Consequently, while this study takes a few steps towards measuring and explaining the link between strategy, motives, and ventures, additional research is needed to provide knowledge about both selection and rejection.

Another issue is firm-level survival bias. Firms that existed during 2001 but were terminated or otherwise removed from the population were not approachable for data collection, since that took place during 2006. In addition, we know from the telephone interviews that many firms experienced somewhat of a crisis during the period. As a result, if some firms did not survive due to issues related to motives and effects of venture selection, there may be some bias proportional to the effect of these issues and to the amount of such cases.
5.6.2 Regarding Non-response Bias

A common problem in survey-based research is the possibility of non-response bias. While a low response rate in itself is not a problem, one of the premises of statistic methods is that the characteristics of a smaller group can be inferred to a larger population in which the group exists. Non-response bias causes erroneous statistical results when the decision to participate in the study depends on non-random reasons that have to do with the phenomena studied. This study is subject to the possibility of non-response bias on two levels:

- First, at the firm-level, it is possible that some firms were more likely to participate in the research project than other firms. For instance, one may suspect that firms that do not make any business development efforts are less interested in participating than other firms. However, this is not a source of non-response bias, since the study is primarily on the venture level, and therefore has no bearing on inactive firms anyway. If, on the other hand, firms that pursue ventures decline to participate, for example because all their attempts failed and they are unwilling to report failure, it is a potential source of bias. While the absence of non-response bias is very difficult to prove, it is possible to search for signs of bias. Such signs include divergences between the characteristics of the sample compared to the population. Investigating the variables available for both groups nevertheless revealed no substantial divergences. Patterns of R&D spending, industry membership, and venture activity levels appear to be consistent (see appendix 6). The smallest firms are slightly under-represented, see figure 43, which is not surprising as they are not as active in business development (see appendix 8). It is therefore difficult to judge precisely whether the under-representation is related to a bias problem. In essence, however, the sample seems reasonably representative for the population, as far as the verifiable firm-level characteristics are concerned. In addition, no signs of non-response bias surfaced during the hundreds of phone interviews with top managers, or during follow-up phone calls with none-respondents in the test survey (see sections 3.4.1 and 3.6.1).

- Second, at the venture-level, the data may be biased if the respondents’ choice to report ventures depends on issues that are included in the investigation. A way to mitigate this risk is to give instructions about how to select ventures for the survey (e.g. tell respondents to provide data about the last venture). However, I abstained from imposing such constraints due to the risk of lower response rates. A search for divergent characteristics revealed that the distribution of market versus business development ventures in the sample is very similar to that in the population. Similarly, the follow-up contacts with respondents gave no indications of bias (see appendix 6).

73 Sometimes, researchers evaluate non-response bias by equating late respondents to non-respondents and search for differences between the two groups (Armstrong & Overton, 1977). This was not possible here, since sending of surveys occurred over several weeks and many responses were anonymous.
Based on these observations, I am optimistic regarding the representatives of the sample.

5.6.3 Regarding Instrument Bias

Instrument bias occurs when systematic errors in the data are caused by the data gathering instrument, their use, or their design. Two important potential sources of such errors are the questionnaire and the questions.

This study included attempts to minimize bias from the questions by using test respondents, a survey test run with construct evaluation, and careful phrasing in order to avoid loaded questions (Churchill, 1999).

Regarding the questionnaire, the use of two response options allow for evaluation of instrument bias caused by data submission preferences or questionnaire differences. While the online questionnaire was designed to be as similar to the paper questionnaire as possible, it was not identical, possibly causing differences in the responses. Attempts to verify instrument bias related to the response options were made. There were nevertheless no signs of substantial differences between online and offline responses. Mean value divergences were few, small, and in proportion to expectations, given the significance levels used for the tests. Section 3.2 and appendix 7 contain additional information regarding instrument development. Overall, the many evaluations, both before and after sending the surveys, should probably have revealed any remaining large instrument problems, if there were any.

5.7 Concluding Remarks

Most of the time, corporate entrepreneurship is studied as a phenomenon separated from its context. Little attention is paid to its role as a businesses development method, and few researchers acknowledge that it is a manifestation of realized strategies. Consequently, a good deal of entrepreneurship research seems to suffer from narrowness in scope. Presuming that entrepreneurship causes firm growth, many studies tend to focus on the explorative and creative side of entrepreneurship, and try to estimate the effects of tendencies towards innovation or opportunity alertness (depending on which theory stream the researchers in question confesses to). However, as business growth comes from transactions, it comes from exploitation only. A truly growth-oriented firm would normally not squander resources and attention on exploration and business development, unless the opportunity underlying the current business had inadequate potential. This study confirms that entrepreneurship is related to business growth, even though it cannot determine the direction of causality (maybe growing firms can afford more ventures?). Nevertheless, the existence of large groups of reactive ventures and defensive ventures indicates that researchers need to be more open-minded about corporate entrepreneurship, and embrace its diversity, or they might overlook more than they uncover. Corporate entrepreneurship may, for instance, be a symptom of problems, just as well as it may be a symptom of opportunity orientation or growth ambitions.
While the study of a phenomenon in isolation may be very useful, there is a risk that researchers eventually start to think of it as independent to an inappropriate extent. That would have two important consequences for the field:

- First, for the practitioners, the meaning of a corporate entrepreneurship activity is inseparable from its context and purpose. In other words, what researchers see as corporate entrepreneurship, is, for practitioners, a subset of their ongoing activities of handling strategic challenges. Further, the categorization of an activity as corporate entrepreneurship is based on the practitioners’ method, not on their purpose or on the outcome. However, for practitioners, the choice of method may be of secondary interest. This means that, depending on what one aims to study, setting out to research “entrepreneurship” may actually mean that one is already being too narrow. If one seeks to understand a firm's behavior and/or the practitioners’ role in it, it is of fundamental importance to include the firm’s situation and the strategy with which practitioners deal with it. Otherwise, important forms of the phenomenon and its meaning may be overlooked. I thereby concur with Carrier’s (1996) call for an integrationist perspective in future entrepreneurship research, focusing on both the situation and the firm, as well as on the reciprocal interaction between the two that unfolds over time.

- Second, the isolated study of entrepreneurship may cause the phenomena to be perceived as clearer, and more well-defined, than may be called for. In addition to the risk associated with narrowness mentioned above, there is therefore also a risk of premature delineation and linking of constructs. From some points of view, one may even argue that corporate entrepreneurship does not exist; it is merely a label set by researchers to categorize certain kinds of activities. Corporate entrepreneurship researchers should instead remember that categorization involves simplification that usually is at least partly artificial, and therefore take care to avoid wandering off too deeply into abstractions. This is especially important when working from assumption-based, rather than empirically grounded, theory (e.g. EO, EM, and the resource-based view). So, while good theory is often said to begin with good definitions; good research that seeks to understand corporate entrepreneurship needs to avoid being based on definitions and theory that involves too early decisions about what the phenomenon is.

Another issue concerning the latter point is the large acceptance among researchers to measure corporate entrepreneurship based on firm characteristics, as is done through the EO and EM instruments. For some applications, this is similar to sampling on the dependent variable. A more robust research design would be to define and measure the extent of firms’ entrepreneurial activity, and then see how it correlates to attributes such as risk-willingness, proactiveness, innovation, opportunity orientation, and so forth. The current study is more robust in this respect, as it focuses on manifest entrepreneurship (i.e. ventures) and allows for symptoms and attitudes to be evaluated.

Moreover, if one really wants to understand business growth, one should pay attention to both external fit (the criteria for top-line growth) and internal fit (the criteria for efficiency and bottom-line growth). The priority of the types of business growth may shift, and the
actions taken in the firm’s development process that regard improvement of both types of fit need to be studied. Fit, in turn, refers to the match between elements in the business model. The way fit can be changed by the firm, is by the targeting of development efforts to selected elements, in order to adjust them towards a better match. In this study, different ventures targeted development of the elements in the business model to different degrees, as illustrated in the following figure (see section 2.1.1 for clarifications regarding the model).\textsuperscript{74}

\begin{figure*}[h]
\centering
\begin{tabular}{cccc}
\hline
\textbf{Cluster 1:} & \textbf{Cluster 2:} & \textbf{Cluster 3:} & \textbf{Cluster 4:} \\
Diversification & Limited market expansion & Market-driven product extension & Technology-driven product development \\
\hline
\end{tabular}
\caption{Focus of Business Development in Each Cluster.}
\end{figure*}

The findings, in particular the cluster analysis, show that firms’ use of corporate entrepreneurship is more multifaceted than one might initially expect. For instance, the illustration above reveals that cluster 1 ventures are the most encompassing development efforts, referring to the change of the entire business model, or the starting of a new business area altogether. The other ventures have more narrow development scope. Figure 40 also provides an additional demonstration of the diversity of corporate entrepreneurship: Even though it is just one of several alternative means for business development, it can be undertaken in different ways, for different reasons, and target different levels of the business model.

It is my hope that these concluding remarks will inspire future researchers to pursue more knowledge about corporate entrepreneurship, its link to strategy, and its manifestation in product, market, and competence development through corporate ventures, with great enthusiasm and open-mindedness.

\textsuperscript{74} Since competences are included in the organization element, it is reasonable to suggest that a competence orientation indicates ambitions to achieve changes within that element.

A effort targeting the organizational level only should be labeled as organizational development, rather than business development or corporate entrepreneurship.
Discussion
6 REFERENCES


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References


References
APPENDIX
Appendix

Appendix 1: Survey (The last two pages occurred three times in the booklet)

KUNGliga TEKniska HöGSKolan

Hur utvecklas mindre och medelstora företag?

UNDERSÖKNINGSFAKTA

Uppgiftslämnare erbjudes till ett seminarium för företagsledare om affärsutveckling i mindre företag samt erbjuds en skriftlig resultatrapport. Anmäl ditt intresse på baksidan.

Uppdragsgivare: Skolan för Industriell Teknik och Management (ITM) på KTH.
Projektledare: Kent Thorén, forskare i Industriell Ekonomi vid ITM.
Mer information: www.indek.kth.se/SME

Studiens syfte: Finna konkreta lösningar för att hjälpa svenska företag i dessa utveckling.

Användare av det färdiga resultatet: Företagsledare, forskare och politiker.

Tidsåtgång: Del 1: ca 8 minuter, del 2: ca 8 minuter per satsning / affärsutvecklingsprojekt.

Påminnelse: Påminnelse skickas ut efter en vecka.

Kontakt/frågor: kent.thoren@indek.kth.se, 0709 – 81 67 46.

INSTRUKTIONER

Typ 1: Motsatsfrågor

Exempel: Om du tycker mer om sommaren än om vintern, markerar ni 1 och 5, och om vintern är det 6 och 9.

MÅTTE
Jag tycker snart om vintern. Jag tycker snart om sommaren.

Typ 2: Frågor med ett påstående

Exempel: Föredrar du att vara ledig sommartid, markeras ett värde till vänster för påståendet:

Instämmer ej Instämmer

Jag föredrar att ta det mest av min semester på vintern.

TACKFÖR DIN MEDVERKAN!
Appendix

Del 1, Bakgrundsinformation

1. Vilken är er bolagets form?
   - Handelsbolag
   - AB
   - Ekonomin företag
   - Kommanditbolag
   - Annat.

2. Markera vilken bransch som stämmer bäst med der och företaget finns i:
   - Tillverkning av el- och optiska produkter
   - Tillverkning av transportmedel (inklusive delar och tillbehör)
   - Tillverkning av maskiner
   - Övrig tillverkning

3. Omsättningen kommer i första hand från försäljning av varor, tjänster, ungefär lika av varje type.

4. Vilket är grundades företaget? ____________.

5. Arbetenskraven i vårt företag var i slutet av år 1999 ungefär _____ helårtjänster.

6. Arbetenskraven i vårt företag var i slutet av år 2005 ungefär _____ helårtjänster.


9. I genomsnitt, hur stor del av företagets omsättning investeras i forskning och utveckling? ______ %.

10. Ungefärlig antal affärsutsättningsstagingar (satsningar på att ta fram nya produkter och/eller på att gå in på nya marknader/kundgrupper) har ni påbörjat de senaste 5 åren? ________.

11. Har ni en formell process för utvärdering av affärsutsättningsstagingar? Ja ☐, Nej ☐

12. Är du ... Man ☐, Kvinna ☐


14. Vilket alternativ motsvarar bäst din högsta avslutade utbildning?
   - Grundskola
   - Teoretiskt gymnasium eller motsvarande
   - Teknisk/Naturvetenskapligt gymnasium
   - Teknisk yrkeshögskola
   - Universitetsutbildning (huset)
   - Universitetsexamen
   - Högare akademisk examen (doktor, licentiat)

15. Är du ansvarig för det dagliga ledarskapet i företaget (dvs VD eller motsvarande)? Ja ☐, Nej ☐

16. Hur stor andel av företaget äger du personligen? _____ %.

17. Var du med och grundade företaget? Ja ☐, Nej ☐

18. Företagets namn ____________________________
   (frivilligt, används bara för att spara in på minnet).
### Appendix

| 19. Vår bransch växer mycket snabbare än ekonomin som helhet. | 12345678910 | Vår bransch krympar, eller växer långsammare än ekonomin som helhet. |
| 20. Akterar med finansiellt kapital (privata investerare, långivare etc.) har ett mycket starkt intresse för min typ av företag. | 12345678910 | Akterar med finansiellt kapital är inte alls intresserade av min typ av företag. |
| 23. Efterfrågan och konkurrentens preferenser är igenkänt (för en specifik produkt). | 12345678910 | Efterfrågan och konkurrentens preferenser är nästan omöjliga att förutse (t ex för modevaror). |
| 24. Omvärlden är oändlig, det finns alltid nya produkter och tjänster. | 12345678910 | Omvärlden är oändlig, det finns alltid nya produkter och tjänster. |

### Strategisk inriktning

| 27. Vi tar till vara på nya affärsmöjligheter vi gärna ser vidare med begränsat utfallsrisken de resurser vi har. | 12345678910 | Vi tar till vara på nya affärsmöjligheter vi gärna ser vidare med begränsat utfallsrisken de resurser vi har. |
| 28. Våra affärsstrategier påverkas mycket av de resurser vi har tillgängliga. | 12345678910 | Våra affärsstrategier står av de möjligheter som dyker upp. |

### Inställning till resurser

| 29. Eftersom vi inte behöver ha alla resurser tillgängliga när en ny satsning påbörjas, kan resurser räntas tagits av. | 12345678910 | Eftersom vi inte behöver ha alla resurser tillgängliga när en ny satsning påbörjas, kan resurser räntas tagits av. |
| 30. Vi föredrar att åka och ha god kontroll över de resurser vi använder. | 12345678910 | Vi föredrar att åka och ha god kontroll över de resurser vi använder. |
| 31. Vi föredrar att läna eller hyra in resurser. | 12345678910 | Vi föredrar att läna eller hyra in resurser. |
| 32. När det gäller att exploatera möjligheter är det viktigast att ha idén än att ha pengar. | 12345678910 | När det gäller att exploatera möjligheter är det viktigast att ha idén än att ha pengar. |
## Appendix

### Tillväxtattityd

| 33. Den allmänna inställningen i hela företaget är att tillväxt är vårt främsta mål | 1 2 3 4 5 6 7 8 9 10 | Tillväxt är inte nedvadatidigt vår huvudsak. Långsiktigt fortsatt är minst lika viktigt. |
| 34. Den allmänna inställningen i hela företaget är att vi vill vara oss så stora som möjligt så snabbt som möjligt | 1 2 3 4 5 6 7 8 9 10 | Den allmänna inställningen i hela företaget är att stadig och pålitlig tillväxt är det bästa sättet att expandera |

### Ledning och organisationstruktur

| 35. Vi föredrar noggrann styrning av ekonomi och verksamhet | 1 2 3 4 5 6 7 8 9 10 | Vi föredrar läsare, informell styrning. |
| 36. Verksamheten är beroende av formell styrning | 1 2 3 4 5 6 7 8 9 10 | Verksamheten är beroende av informella relationer. |
| 37. Vi betonar starkt att få säker gårdar enligt formella processer och procedurer. | 1 2 3 4 5 6 7 8 9 10 | Vi betonar starkt att få säker gårdar, även om detta innebär att man bortser från formella procedurer. |
| 38. Vi betonar starkt att vidhålla beprövade och etablerade manager utprinciper och branschnormer | 1 2 3 4 5 6 7 8 9 10 | Vi betonar starkt anpassning till förändringar, varvid större hansyn till egenskaper tillgängliggar satt. |
| 39. Vi försöker upprätthålla en enhetlig ledningstil inom hela företaget. | 1 2 3 4 5 6 7 8 9 10 | Ledare allmänningar sitt får vanera från mycket formell till mycket informell. |
| 40. Vi betonar starkt att personalen ska följa formella arbetsbeskrivning. | 1 2 3 4 5 6 7 8 9 10 | Vi tenderar att låta situationens villkor och individers personlighet avgöra vad som är korrekt beteende i jobbet. |

### Belöningssiffror

| 41. Anställda utvärderas och får ersättning på basis av hur stort ansvare har | 1 2 3 4 5 6 7 8 9 10 | Anställda utvärderas och belönas utifrån pensation, dvs. det värde pela till för. |
| 42. Anställda belonars vanlig genom beförden eller andra löneförhöjningar | 1 2 3 4 5 6 7 8 9 10 | Vi försöker belöna våra anställda genom de färta del av företagets ökande värde |
| 43. En anställd ställning inom företaget bygger på vilket ansvar han/hon har. | 1 2 3 4 5 6 7 8 9 10 | En anställd ställning baseras på den nytta han/hon gör. |

### Kultur

| 44. Vi har betydligt fler lovande idéer än vi har tid och kraft att ta vara på. | 1 2 3 4 5 6 7 8 9 10 | Vi har svår att hitta tillräckligt med bra idéer att satsa alla våra resurser på. |
| 45. Samhällets förändringar ger oss nya idéer till nya produkter eller tjänster eller till andra förändringar inom företaget. | 1 2 3 4 5 6 7 8 9 10 | Förändringar i samhället leder till kommunikation om nya idéer för vår typ av verksamhet. |
| 46. Vi upplever aldrig brist på idéer som vi kan omvandla till lönsamma produkter. | 1 2 3 4 5 6 7 8 9 10 | Att hitta utredningsidéer som verkligen kan ge något hör till det svåraste för oss |
### Resursanskaffning, finansiellt kapital

47. Att finansiera verksamheten är en viktig del av företagares arbete. För var och en av hälleorna nedan som du tror att ni kan skaffa finansiering från – ange hur pass säker du är.

De källor som du tror ni inte kan få finansiering från lämnas helt omärkade.

<table>
<thead>
<tr>
<th>Jag tror att vi kan få finansiering från...</th>
<th>Inte alls säker</th>
<th>Mycket säker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egna resurser/eget sparande</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Familj och vänner</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Leverantörer och fordringsägare</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Kunder</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Affärspartners, personer i styrelse eller ledning</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Moderbolag (eller motsvarande)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Privata investerare (t ex affärsanlägg)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>ALMI (innovationslån, företagslin)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Kommersiella långvar (förutom banker)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Banker</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
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<tr>
<td>Risikokapitalister</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Industriefonden</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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<tr>
<td>Offentliga lån (förutom ALMI och industriefonden)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
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<tr>
<td>EU-bidrag (t ex ”växtkraft”)</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
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<tr>
<td>Annat, var god ange</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

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**LÄS NEDAN INNAN DU GÅR VIDARE!**

---

**INSTRUKTIONER TILL DEL 2**

Undersökningen bygger på information om specifika affärsutvecklingsförsök. På följande sidor ställs därmed frågor om era satsningar på att etablera nya affärsområden, dvs utveckling av nya produkter/hjälp, etablering i nya marknader/kundgrupper eller kombinationer av dessa.

- "Satsningar" avser endast era egna affärsutvecklingsförsök — uppköp av företag, så kallade joint ventures och liknande ingår inte i studien.
- Vi är intresserade av både "lyckade" och "misslyckade" satsningar och allt däremellan, men de måste ha insats och pågått så länge att du kan utvärdera dem.
- Ni kan fylla i information om flera olika satsningar. Använd ett uppslag med frågor per satsning.
- Det finns plats för att svara på frågor om 1, 2 eller 3 satsningar.
### Appendix

**Markera hur väl påståendena stämmer med motiven och syftet för SATSNING 1**

<table>
<thead>
<tr>
<th>Markering</th>
<th>Beskrivning</th>
<th>1</th>
<th>2</th>
<th>3</th>
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</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Satsningen var marknadstvungen.</td>
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<tr>
<td>b.</td>
<td>Det som fick oss att tänka på den nya affärsmöjligheten var interna omständigheter och/eller interna kunskaper.</td>
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<tr>
<td>c.</td>
<td>Vi bedömde nyttan med satsningen huvudsakligen utifrån effekten på vår konkurrensposition (text marknadshandel, rivalitet, marknadspenetration osv.).</td>
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<tr>
<td>d.</td>
<td>Vi bedömde nyttan med satsningen huvudsakligen utifrån ekonomiska förväntningar (text intäkt, vinst, tillväxt, kasamål, osv.).</td>
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<tr>
<td>e.</td>
<td>Vi behövde agera för att bemota förväntade framtidsvillkor för företaget.</td>
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<tr>
<td>f.</td>
<td>Vi ville ta initiativet och låta konkurrenter eller konkurrenter agera eller agera initiativet.</td>
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<td>g.</td>
<td>Vi ville gå framåt och vinna en uppmärksamhet av marknadsorganisationen.</td>
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<tr>
<td>h.</td>
<td>Vi funderade inom vikten av konfliktens motståndare. Det &quot;Finns plats för alla&quot;.</td>
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<tr>
<td>i.</td>
<td>Vi hade en förutsatt och avvarande ställning för att minimera risken att ta dyrbare felbeslut.</td>
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**Instämmer ej Instämmer**

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<tr>
<th>Markering</th>
<th>Beskrivning</th>
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</thead>
<tbody>
<tr>
<td>a.</td>
<td>En viktig orsak till att vi satsade tid och resurser på detta affärsutvecklingsförsök var att vi ville utveckla kompetens vi uppfattade som viktig på lång sikt.</td>
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<tr>
<td>b.</td>
<td>Jag tycker att de viktigaste källerna till initiativet tas upp i några av a1–a10 ovan.</td>
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<tr>
<td>c.</td>
<td>Större utmaning är satsningen att sätta ut nya produkter och att ta i anspråk en del av marknaden.</td>
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<td>d.</td>
<td>Persönliga eller ideella affärsmissag som hade stort inflytande på beslutet att satsa.</td>
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**HUR VÄL STÄMMAR FölJande PÅSTÅENDE MED SITUATIONEN DÅ NI BeskATTADe ER FÖR ATT SATS?**

<table>
<thead>
<tr>
<th>Markering</th>
<th>Beskrivning</th>
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<th>8</th>
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</thead>
<tbody>
<tr>
<td>a.</td>
<td>Vi visste redan vilka kunder/kundgrupper det nya affärsområdet skulle ha.</td>
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<tr>
<td>b.</td>
<td>Initiativ十九届 satsningen skulle uppfylla obelant, okänt eller främmande för oss.</td>
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<tr>
<td>c.</td>
<td>Satsningen krävde marknadssamtal som vi inte var betydande med sedan tidigare.</td>
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<tr>
<td>d.</td>
<td>Vi tyckte att kundens smak förändrades hela tiden.</td>
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<td>e.</td>
<td>Kunderna sökte hela tiden efter nya produkter.</td>
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<tr>
<td>f.</td>
<td>Konkurrenter inom det nya området agerade ofvanligt.</td>
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<tr>
<td>g.</td>
<td>Det var svårt att uppskatta vilket på kunderna skulle vara villiga att betala.</td>
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</tbody>
</table>
## Appendix

...fortsättning SATSNING 1 ...

<table>
<thead>
<tr>
<th>Nr</th>
<th>Uttryck</th>
<th>Instämmer ej</th>
<th>Instämmer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21. Komponenterna som ingick i produkten var nya för oss.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>22. Produkternas komponentkonfiguration var ny för oss.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>23. Tillverkningsprocessen var ny för oss.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24. Teknologin i produkten förändrades snabbt</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25. Teknologin i den aktuella branchen förändras snabbt</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>26. Kostnaderna för satsningen var låta som uppklarade i förväg</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nr</th>
<th>Uttryck</th>
<th>Instämmer ej</th>
<th>Instämmer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>27. ...så att den skulle få en mycket stor inriktning på vår omsättning</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>28. ...så att den skulle få en mycket stor inriktning på vår vinst</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>29. ...så att den skulle få en mycket stor inriktning på vår marknadandel</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30. Vi räknade med att branchens i fråga skulle växa med __________ % per år</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>31. Året då vi tog beslutet att sätta var __________</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>32. Företagens omsättning det året var __________ kr</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>33. Vår vinst/Förlust för året var (ante min ner för förlust) __________ kr</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

## Angående försöket sådana...

- Hur väl stämmer nedanstående med satsningens marknadutveckling:

<table>
<thead>
<tr>
<th>Nr</th>
<th>Uttryck</th>
<th>Instämmer ej</th>
<th>Instämmer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34. Satsningen vände sig till kunder långt utanför våra tidigare kontakten</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>35. Vi hade sedan tidigare produkter som ger samma typ av kundnytta eller som används för samma lindbehov.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
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</tbody>
</table>

- Hur väl stämmer nedanstående med satsningens produktutveckling:

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<tr>
<th>Nr</th>
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<th>Instämmer ej</th>
<th>Instämmer</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>36. Satsningen innebar nya sätt att tjäna pengar på en befintligt produkt</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>37. För att genomföra satsningen krävdes omfattande produktutvecklingsarbete.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>38. Detta var ett av våra första försök att genomföra produktutveckling.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>39. Detta har var första satsningen av den företag grundades på Ja, Nej.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
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<tr>
<td></td>
<td>40. - Markera hur långt ni kommit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>...Satsningen avbrotts... Satsningen har just börjat... Satsningen är i gång och pågår fortfarande... Satsningen är genomför... och det nya affärsområdet är införd... i verksamheten...</td>
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</tbody>
</table>

## Utfall. Jämfört med de ursprungliga förväntningarna har...

<table>
<thead>
<tr>
<th>Nr</th>
<th>Uttryck</th>
<th>Instämmer ej</th>
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<tbody>
<tr>
<td></td>
<td>41. ...försäljningen i allmänhet överträffat våra förväntningar.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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<tr>
<td></td>
<td>42. ...investeringarna i den här satsningen till en lätta avlastning än förväntat.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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<tr>
<td></td>
<td>43. ...satsningen i allmänhet gått bättre än den föreslagen avstånd och</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>44. ...vi tagit större marknadsandelar än förväntat.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
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<tr>
<td></td>
<td>45. ...lanseringen kommer göra tidigare än förväntat.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
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</table>
Appendix 2: Question List, in English

Firm-level Questions (i.e. Part 1 of the Questionnaire)

Questions, in order of appearance in the questionnaire:

Background information:

1. **f_form** How is your business organized? (Sole proprietorship, incorporated etc.)
2. **ind** In what industry does your firm operate? (Industry 1, industry 2, industry 3, industry 4)
3. **s_distr** Our turnover is mostly from (Sales of: Products; services; equal).
4. **f_year** Which year was the firm founded? _____________.
5. **o_size99** The firm had _________ employees at the end of 1999 (full-time equivalent).
6. **o_size05** The firm had _________ employees at the end of 2005 (full-time equivalent).
7. **b_size99** What was the approximate turnover 1999? _______.
8. **b_size05** What was the approximate turnover 2005? _______.
9. **rnd** On average, what proportion of the turnover is invested in R&D? _________ %.
10. **no_vent** Approximately, how many business development venture have your firm initiated during the last 5 years? ______
11. **f_proc** Do you have a formal process for evaluating new ventures? (Yes/No)
12. **r_sex** What is your gender? (Man/Woman)
13. **r_age** What is your age? ______ ?
14. **r_edu** What alternative corresponds to your highest, completed, education? (Fundamental school … PhD.)
15. **r_ceo** Are you responsible for leading the firm (CEO or equivalent)? (Yes/No)
16. **r_equity** What proportion of the company do you own? ______ %.
17. **r_found** Were you involved in founding the firm? (Yes/No)
18. **f_name** Firm name (voluntary): _____________________.

200
The environment, how do you perceive your industry and market etc.: \(^{75}\)

| mun_1 | My industry is growing much faster than the economy. 1 2 ... 9 10 My industry is growing much slower than the economy, or declining. |
| mun_2 | Providers of financial capital (private investors, lenders etc.) extremely interested in businesses like mine. 1 2 ... 9 10 Providers of financial capital (private investors, lenders etc.) not at all interested in businesses like mine. |
| dyn_2 | The rate at which products or services are getting obsolete is very slow (e.g., basic metals etc.). 1 2 ... 9 10 The rate of obsolescence is very high (as in some fashion goods and semiconductors). |
| dyn_3 | Actions of competitors are quite easy to predict (e.g. some base industries). 1 2 ... 9 10 Actions of competitors’ are unpredictable. |
| dyn_4 | Demand and consumers’ tastes are fairly easy to forecast (e.g. for milk companies). 1 2 ... 9 10 Demand on tastes are almost unpredictable (e.g. high-fashion goods). |
| host_1 | Very safe, little threat to the survival and well being of my business. 1 2 ... 9 10 Very risky, one false step can mean my business’s undoing. |
| host_3 | An environment that my business can control and manipulate to its own advantage, such as a dominant firm in an industry with little competition and few hindrances. 1 2 ... 9 10 A dominating environment in which my business’s initiatives count for very little against the tremendous political, technological or competitive forces. |

Judge the following statements (regarding entrepreneurial management): \(^{76}\)

| strat_1 | As we define our strategies, our major concern is how to best utilize the resources we control. 1 2 ... 9 10 As we define our strategies, we are driven by our perception of opportunity. We are not constrained by the resources at hand. |
| strat_2 | We limit the opportunities we pursue on the basis of our current resources 1 2 ... 9 10 Our fundamental task is to pursue opportunities perceive as valuable and then acquire the resources to exploit them. |
| strat_3 | The resources we have significantly influence our business strategies. 1 2 ... 9 10 Opportunities control our business strategies |

\(^{75}\) Two of the environment questions were dropped as a result of the test survey (see section 3.4):
- dyn_1: ”My business must rarely change its marketing practices to keep up with the market and competitors.” VS. ”My business must change its marketing practices extremely frequently (e.g. semi-annually).”
- host_2: ”Environment is rich in investment and marketing opportunities.” VS. ”It is very stressful, exacting, hostile, very hard to keep afloat.”

\(^{76}\) There are some differences between the questions used in the final survey and the original instrument of Brown et al (2001):
- strat_2; “exploit” translated as realized, “exploitation” has a negative connotation for many Swedes.
- The resource orientation (reso) items were slightly adjusted to avoid loaded wordings.
- mgnt_1 and mgnt_2: one variable was changed into two questions. Brown et al. (2001) used one item to investigate the reliance on formal control and informal relations. However, smaller firms usually don’t need as sophisticated control systems, and formal control does not prevent informal communication.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>reso_1</td>
<td>Since we do not need resources to commence the pursuit of an opportunity, our commitment resources may be in stages. (reversed scale)</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>reso_2</td>
<td>All we need from resources is the ability to use it. (reversed scale)</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>reso_3</td>
<td>We like to employ resources that we borrow or rent. (reversed scale)</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>reso_4</td>
<td>In exploiting opportunities, having the idea is more important than having the money. (reversed scale)</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>gwto_1</td>
<td>It is generally known throughout the firm that growth is our top objective. (reversed scale)</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>gwto_2</td>
<td>It is generally known throughout the firm that our intention is to grow as big and as fast as possible. (reversed scale)</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>mgnt_1</td>
<td>We prefer thorough control of funds and operations.</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>mgnt_2</td>
<td>There is a dependence on formal control and information systems</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>mgnt_3</td>
<td>We strongly emphasize getting things done by following formal processes and procedures.</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>mgnt_4</td>
<td>We strongly emphasize holding to tried and true management principles and industry norms.</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>mgnt_5</td>
<td>There is a strong insistence on a uniform management style throughout the firm.</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>mgnt_6</td>
<td>There is a strong emphasis on getting line and staff personnel to adhere closely to their formal job descriptions.</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>rew_1</td>
<td>Our employees are evaluated and compensated based on their responsibilities.</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>rew_2</td>
<td>Our employees are usually rewarded by promotion and annual raises.</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>rew_3</td>
<td>An employee’s standing is based on the amount of responsibility s/he has.</td>
<td>1 2 ... 9 10</td>
</tr>
<tr>
<td>cult_1</td>
<td>We have many more promising ideas than we have time and the resources to pursue.</td>
<td>1 2 ... 9 10</td>
</tr>
</tbody>
</table>
Appendix

**cult_2** Changes in the society-at-large often give us ideas for new products and services. 1 2 ... 9 10 Changes in the society-at-large seldom lead to commercially promising ideas for our firm.

**cult_3** We never experience a lack of ideas that we can convert into profitable products/services. 1 2 ... 9 10 It is difficult to for our firm to find ideas that can be converted into profitable products/services.

Indicate your perception on the prospects for obtaining financial resources, from each of the sources:

**RASE_1** Personal resources Not at all confident 1 2 ... 9 10 very confident

**RASE_2** Family and friends Not at all confident 1 2 ... 9 10 very confident

**RASE_3** Suppliers and trade creditors Not at all confident 1 2 ... 9 10 very confident

**RASE_4** Customers Not at all confident 1 2 ... 9 10 very confident

**RASE_5** Corporate partners, board of directors Not at all confident 1 2 ... 9 10 very confident

**RASE_6** Parent firm Not at all confident 1 2 ... 9 10 very confident

**RASE_7** Private investors Not at all confident 1 2 ... 9 10 very confident

**RASE_8** ALMI (innovation loans, business loans) Not at all confident 1 2 ... 9 10 very confident

**RASE_9** Commercial lenders/lessors (other than commercial banks) Not at all confident 1 2 ... 9 10 very confident

**RASE_10** Commercial banks Not at all confident 1 2 ... 9 10 very confident

**RASE_11** Formal venture capitalists Not at all confident 1 2 ... 9 10 very confident

**RASE_12** Industrifonden Not at all confident 1 2 ... 9 10 very confident

**RASE_13** Government programs (other than the ALMI and Industrifonden) Not at all confident 1 2 ... 9 10 very confident

**RASE_14** EU-funds Not at all confident 1 2 ... 9 10 very confident

**RASE_15** Other (please state which): _______. Not at all confident 1 2 ... 9 10 very confident

**Venture-level Questions (i.e. Part 2 of the Questionnaire)**

Questions, in order of appearance in the final questionnaire:

Indicate how well the statements agree with the motives and purposes for the venture:

**oorg_1** The venture was market driven. 1 2 ... 9 10 The venture was technology driven

**oorg_2** Internal conditions and/or knowledge made us think about the opportunity. 1 2 ... 9 10 Things in the external environment made us think about the opportunity (e.g. competitors, customer needs, political change). (reversed scale)

**mot_1** We valued the venture’s benefits mainly with regards to the competitive position (e.g. market share, rivalry, market penetration etc). 1 2 ... 9 10 The main reasons for the venture did not regard our market position vis-à-vis competitors.

**mot_2** We valued the venture’s benefits mainly with regards to economic expectations (e.g. revenue, profit, growth, cash-flow etc.). 1 2 ... 9 10 The main reasons for the venture did not regard economic priorities/ambitions.
| mot_3 | We needed to take action in anticipation of future conditions. | 1 2 ... 9 10 | We needed to adjust to circumstances at hand. |
| mot_4 | We wanted to take the initiative and let competitors or customers react. | 1 2 ... 9 10 | We needed to respond to competitors’ or customers’ initiative. |
| mot_5 | We needed to go ahead and win an opportunity. | 1 2 ... 9 10 | We wanted to preserve/protect long-term economic healthiness. |
| mot_6 | We tried to avoid confrontation with competitors. There is “room-for-everybody”. | 1 2 ... 9 10 | We wanted to confront and defeat competitors. |
| mot_7 | We had a cautious “wait-and-see” posture in order to minimize the risk of making costly decisions. | 1 2 ... 9 10 | We had a bold and aggressive attitude to maximize the possibilities to exploit promising opportunities. |
| mot_8 | An important reason to put time and resources in the venture was that we wanted to develop competences that appeared important in the long run | Disagree 1 2 ... 9 10 | Agree |
| mot_9 | Most of the important reasons for the new venture are included in the questions above. | Disagree 1 2 ... 9 10 | Agree |
| mot_10 | The venture was largely a way to utilize excess resources. | Disagree 1 2 ... 9 10 | Agree |
| mot_11 | Personal, or non-business, reasons played an important role in our decision to start. | Disagree 1 2 ... 9 10 | Agree |

How well does the statements describe the situation at which you decided to engage in the venture?

| munc_1 | We knew who the customer groups were. (reversed scale) | Disagree 1 2 ... 9 10 | Agree |
| munc_2 | We were initially very unfamiliar with the customer need the venture aimed to fulfill. | Disagree 1 2 ... 9 10 | Agree |
| munc_3 | The venture required distribution channels that were unfamiliar to us. | Disagree 1 2 ... 9 10 | Agree |
| munc_4 | We felt that customer preferences changed all the time. | Disagree 1 2 ... 9 10 | Agree |
| munc_5 | Our customers tend to look for new products constantly. | Disagree 1 2 ... 9 10 | Agree |
| munc_6 | The actions of competitors, in the new area, were uncertain and/or unpredictable. | Disagree 1 2 ... 9 10 | Agree |
| munc_7 | It was difficult to estimate the price customers would be willing to pay. | Disagree 1 2 ... 9 10 | Agree |
| tunc_1 | The components in the product were new to us. | Disagree 1 2 ... 9 10 | Agree |
| tunc_2 | The component configuration of the product was new to us. | Disagree 1 2 ... 9 10 | Agree |
| tunc_5 | The process required for manufacturing was familiar. (reversed scale) | Disagree 1 2 ... 9 10 | Agree |
| tunc_6 | The technology included in the product was rapidly changing. | Disagree 1 2 ... 9 10 | Agree |
| tunc_7 | The technology in the venture’s industry is rapidly changing. | Disagree 1 2 ... 9 10 | Agree |
| tunc_8 | The venture’s costs were easy to predict. (reversed scale). | Disagree 1 2 ... 9 10 | Agree |
Appendix

opsize_1  When we took the decision, we hoped that the venture would have a very large impact on turnover.  Disagree  1 2 ... 9 10  Agree
opsize_2  When taking the decision, we hoped that the venture would have a very large impact on profit.  Disagree  1 2 ... 9 10  Agree
opsize_3  When we took the decision, we hoped that the venture would have a very large impact on market share.  Disagree  1 2 ... 9 10  Agree
opsize_4  We expected that the market would grow with ____ % per year.  Disagree  1 2 ... 9 10  Agree
oscomp_1  The venture started year___________.
oscomp_2  The turnover that year was___________ kr.
oscomp_3  The profit/loss that year was___________ kr.

How well does the statements agree with the market development efforts associated with the venture?
mdev_1  The venture targeted customers far outside our earlier customer groups.  Disagree  1 2 ... 9 10  Agree
mdev_2  We had earlier products that provided the same type of value or targeted the same need. (reversed scale)  Disagree  1 2 ... 9 10  Agree

How well does the statements agree with the product development efforts associated with the venture?
pdev_1  This venture involved new ways of making money from one of our current products. (reversed scale)  Disagree  1 2 ... 9 10  Agree
pdev_2  The pursuit required substantial work with product development.  Disagree  1 2 ... 9 10  Agree
vexp  This was one of our first attempts at business development.  Disagree  1 2 ... 9 10  Agree
pdev_2  This was our very first venture, i.e. the one the firm was established upon.  Yes/No
vstatus  How far has the venture proceeded?  Nominal scale: terminated – just started – still in progress – completed and integrated in overall business activities.

Compared to your initial expectations...
res_1  Overall sales exceeded expectations.  Disagree  1 2 ... 9 10  Agree
res_3  The project exceeded return on investment  Disagree  1 2 ... 9 10  Agree
res_4  The venture exceeded management’s expectations in general.  Disagree  1 2 ... 9 10  Agree
res_5  We took more market share than expected.  Disagree  1 2 ... 9 10  Agree
res_6  Launch was possible earlier than expected.  Disagree  1 2 ... 9 10  Agree

(Part 2 was repeated two additional times in the questionnaire booklet.)
Appendix 3: Coverletter

KUNGliga TEKNISKA HOgSKolan

Hur utvecklas mindre och medelstora Svenska företag?

Bäste Företagsledare

Idag finns förhoppningar om att mindre företag ska vara en källa för ekonomisk tillväxt och sysselsättning. Ändå saknar beslutsfattare ofta kunskap om sådana företags utveckling, behov och förutsättningar. Vi inom Industriell Teknik och Management (ITM) på KTH gör därför en avancerad studie för att skapa en gedigen kunskapsbas för användbara råd till företagare och beslutsfattare. För att komma längre än de få studierna som hittills gjort analys av data från detta företagsområde heter såsom ett komplement till den sådan rådlig kunskap detta. Ett företag har huvudmål att utveckla sig för studien och vi hoppas att ni kan delta då er medverkan är mycket viktig för slutresultatens användbarhet och statistiska tillåtlighet.

För att underlata informationslämnandet har vi skapat en enkät med ett antal frågor som är utformade så att de ska gå snabbt att besvara. Enkätens består av två delar. Del 1 handlar om företaget och del 2 handlar om era förövning av affärsutveckling. I del 2 finns det möjlighet att lämna information om flera olika affärsutvecklingsstrategier. För att statistiken ska bli representativ är det viktigt att även företag som inte är jätter eller stora företag svara, men dessa företag svara endast på del 1. Företagsledare som har testat enkäten, har genomförts på mellan 8 och 28 minuter baserade på hur många svarar de lämnat uppgifter om. Undersökningsresultat om era egna affärsutvecklingsförmögen sättningar som gjorts generellt upptäcks, joutventureras och liknande ingår inte i studien.


Enkäten är utformad för att besvara av företagsledaren, dvs VD eller motsvarande befattningshavare, men besvarandet kan vid behov delageras till någon annan vil mindre person. Anonymitets garantieras. Resultaten presenteras entydigt så som helhet, inte individuellt för deltagande företag. Ytterligare information finns i enkäten samt på www.indel.kth.se/SME.

Ett värdefullt förord for er medverkan!

Vänliga hälsningar

Prof. Bengt Lindberg, Skolchef, Dekan
Skolan för Industriell Teknik & Management

Kert Thoren, forskare
Institutionen för Industrial Ekonomi & Organisation
Skolan för Industriell Teknik & Management

OBS! Alla respondenter inbjuds till ett seminarium om affärsutveckling under 2006 samt erbjuds en rapport från studien. På seminariet träffar ni andra företagsledare som deltagit i studien samt får ta del av tips och resultat. For intresseanmälan är det att emne i slutet av enkäten.

Kungliga Tekniska Högskolan

KTH - Lindstedtsvägen 30, SE-100 44 Stockholm, Tel: 08-760 38 81, Fax: 08-20 72 98, www.indel.kth.se

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Appendix 4: Cover Letter, English Translation

Dear [Firstname Lastname, or: “Business Leader”]

Today, there is hope that smaller firms will be a source of growth and employment. Yet, policy-makers often lack knowledge about such firms’ prospects, development, and needs. We, at the School for Industrial Engineering and Management (ITM) at KTH, conduct an advanced investigation, in order to create a solid knowledge-base that may provide relevant implications for policy-makers and business managers. With the ambition to go deeper than previous studies, this investigation collects data from actual entrepreneurial activities in real firms, rather than opinions. Your firm has been selected for the study, and we really hope that you can participate, since your participation is very important for the usability and reliability of the final results.

We have, in order to facilitate data submission, created a survey with a number of questions that are designed to be easy to answer. The survey has two parts. Part 1 is about the firm, and part 2 regards your business development attempts. In the latter part, it is possible to submit information about several business development ventures. It is important that firms that have not made any business development answer the study nevertheless, or the material will not be representative. Those firms only answer part one. Top managers who have tried the survey have completed it in 8 to 28 minutes, depending on how many ventures they submitted information about. The investigation is about your own development attempts – ventures pursued through joint ventures, acquisitions or similar efforts are not to be included.

You are welcome to submit data on-line, at www.indek.kth.se/sme_survey. At this address, you will find a convenient online questionnaire, which also helps our work with managing the responses. You can also use the enclosed questionnaire if you prefer that. Please respond within a week.

The survey is designed to be answered by the business leader, e.g. the CEO or equivalent. However, this task can be delegated to another well-informed person if needed. Anonymity is guaranteed. The results will only be presented in an aggregated form, meaning that no information about individual firms will be distributed. Additional information can be found in the survey and at www.indek.kth.se/SME.

Thank you for your participation!

Best regards

[Signatures]

Please observe! All respondents are invited to a business development seminar, during 2006, and will also receive a report regarding the results. At the seminar, you can meet other top manager within the study, and take part of advice and results. Submit your e-mail address to notify us if you are interested.
Appendix 5: Regarding Firm-level Constructs

The firm-level constructs that are mentioned in the study concern: i) the firm’s environment; ii) RASE (resource acquisition self-efficacy); and iii) EM (entrepreneurial management).

For a detailed description of the operationalization of RASE, see Brown (1996). The instrument used in this research was contextually modified for the financial/resource markets that currently exist in Sweden. While Brown (1996) tried several alternative ways to calculate a RASE score from the items included in the operationalization (RASE magnitude, RASE strength, and a composite measure), he found that adding the individual scores into a RASE strength measure was the most useful approach.

Environment variables were borrowed from Kahandwalla (1976, 1977) and Naman & Slevin (1993), but these were never used in the current study.

EM consists of 20 items that were included in Brown et al.’s (2001) questionnaire in 1997. The measure is a comprehensive measure, based on Stevenson’s conceptualization of EM as a system of opportunity-based management practices, assumed to facilitate organizational members’ identification and exploitation of new opportunities. It measures six aspects of entrepreneurial management: a firm’s level of Strategic (Opportunity) Orientation; Entrepreneurial Culture; Growth Orientation; Resource Orientation; Management Structure; and Compensation Systems. Some of these constructs were useful as control variables in the analytical work, as described in the corresponding sections (4.3 and 4.4). The indicators for EM, which includes strategic orientation, were taken directly from Brown et al (2001), although one variable was changed into two questions for improved precision. While the original instrument use one item to investigate the reliance on formal control and informal relations, it appeared more correct to ask about controls and relations separately as i) smaller firms usually don’t need as sophisticated control systems (Thorén, 2004); and ii) formal control does not prevent informal communication (i.e. variable mgnt_1 and mgnt_2).
Appendix

Appendix 6: Collected Data

The data collection activities resulted in three sets of data that were used in this study.

- The first data set is the responses to questions asked during the phone interviews (see section 3.6).
- The second data set is the firm-level data collected in the second run of the survey, using the final questionnaire.
- The third data set is the venture-level data collected in the second run of the survey, using the final questionnaire.

This appendix presents the data, some selected descriptives and the data’s correspondence to population patterns. The last issue is used when checking for problems regarding the representiveness of data. Statistical data is representative for a population if it is gained from a random sample or a large part of the population. However, even though surveys are sent to random respondents, one can seldom be sure that the returned surveys represent a random sample unless the response rate is very high. The respondents’ decision to participate or not may introduce elements of non-randomness in the sample. If this non-randomness concerns aspects that are included in the investigation, it is commonly referred to as non-response bias. Demonstrating a large correspondence between the collected data and the population does not guarantee an absence of non-response bias, but it strengthens the case for representativeness of the findings.

Data Set 1: Data Collected Through the Phone Interviews

Of the 304 firms called for a short interview (and a personal invitation to the final survey) 23 were unreachable (7.5%). For one reason or another it was not possible to get a respondent at these firms. Among the 281 reached firms 35 potential respondents declined to participate.77

As a result, the dataset from the phone interviews covers 246 firms, which equal 14.2% of the population and an 87.5% response rate. The high response rate from randomly contacted firms that represents a substantial part of the population, combined with the fact that reasons for non-response were collected, makes a strong case for this data set being representative for the population. The following table provides data descriptives.

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77 Thirteen of these respondents agreed to receive and take a look at the final survey but did not participate in the phone interview.
Table 54: Firm Characteristics, Phone Interview Data.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>New market entry attempts</td>
<td>181</td>
<td>0</td>
<td>30</td>
<td>2.47</td>
<td>3.727</td>
</tr>
<tr>
<td>New market segment venture attempts</td>
<td>187</td>
<td>0</td>
<td>9</td>
<td>0.95</td>
<td>1.468</td>
</tr>
<tr>
<td>Tot. market development venture attempts</td>
<td>243</td>
<td>0</td>
<td>31</td>
<td>3.58</td>
<td>4.816</td>
</tr>
<tr>
<td>Tot. product development venture attempts</td>
<td>229</td>
<td>0</td>
<td>300</td>
<td>9.99</td>
<td>26.125</td>
</tr>
<tr>
<td>Tot. venture attempts</td>
<td>246</td>
<td>0</td>
<td>310</td>
<td>12.84</td>
<td>26.172</td>
</tr>
<tr>
<td>Tot. venture attempts &lt; 56&lt;sup&gt;th&lt;/sup&gt;</td>
<td>240</td>
<td>0</td>
<td>52</td>
<td>9.89</td>
<td>10.869</td>
</tr>
<tr>
<td>Tot. business development attempts &lt; 25&lt;sup&gt;th&lt;/sup&gt;</td>
<td>217</td>
<td>0</td>
<td>25</td>
<td>6.94</td>
<td>5.544</td>
</tr>
<tr>
<td>R&amp;D Spending (%)</td>
<td>209</td>
<td>0</td>
<td>120</td>
<td>6.40</td>
<td>10.210</td>
</tr>
<tr>
<td>Business growth (%)</td>
<td>223</td>
<td>-50</td>
<td>3200</td>
<td>70.69</td>
<td>225.739</td>
</tr>
<tr>
<td>Business growth 300TR&lt;sup&gt;rd&lt;/sup&gt; (%)</td>
<td>221</td>
<td>-50</td>
<td>300</td>
<td>55.47</td>
<td>74.236</td>
</tr>
</tbody>
</table>

Data Set 2: Firm-level Data Collected With the Final Questionnaire

From Mars to June 2006, survey packages were sent to 675 firms, drawn randomly from the population. In total 92 online and 141 offline answers to the final version of the questionnaire were returned, which amounts to a 35% firm-level response rate. Four online and four paper surveys with large portions of unanswered questions were removed from the collected data, as were five firms that got the main portion of revenues from services, and another five firms that had an organizational size over 250 employees in 2005. 222 useful answers remained.

Respondent Characteristics

The questions about respondents indicate that 96.6% of the respondents were male. Age ranged from 28 to 70 years, with average being 49.5 years (2 missing values). 79.4% of the respondents were responsible for leading the firm in question (i.e. CEO or equivalent), and 23.3% of the respondents were involved in the foundation of the firm. 53.4% had an equity stake in the firm and 13.6% owned 100% of their firm (6 missing values). The distribution for respondent education is presented below.

---

<sup>78</sup> Six outliers with more than 55 ventures were excluded because they seem unrepresentative of the population, see figure 45 below.

<sup>79</sup> 29 outliers with more than 25 ventures were removed for comparison with the firm-level data set, see figure 45 below.

<sup>80</sup> Estimates obtained when five outliers were given the truncated value 300 % business growth.
Table 55: Respondent Education.

<table>
<thead>
<tr>
<th></th>
<th>Freq.</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory school</td>
<td>8</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Theoretical upper 2dary high</td>
<td>23</td>
<td>10.4</td>
<td>14.0</td>
</tr>
<tr>
<td>Engineering/science upper 2dary high</td>
<td>60</td>
<td>27.0</td>
<td>41</td>
</tr>
<tr>
<td>Technical specialized adult education</td>
<td>12</td>
<td>5.4</td>
<td>46.4</td>
</tr>
<tr>
<td>University courses</td>
<td>30</td>
<td>13.5</td>
<td>60.0</td>
</tr>
<tr>
<td>University degree</td>
<td>82</td>
<td>36.9</td>
<td>96.9</td>
</tr>
<tr>
<td>Advanced academic degree (lic phd)</td>
<td>6</td>
<td>2.7</td>
<td>99.6</td>
</tr>
</tbody>
</table>

Firm Characteristics

Among all answers, 209 of the firms (91.3%) indicated that products were their main source of revenues. A minority, 15 firms (5.7%), had a balanced mix between product revenues and service revenues, and 5 firms (1.9%) got their main bulk of revenues from services (3 missing values). 65 firms (24.8%) had a formal process for evaluating new ventures and/or opportunities (9 missing values). The distributions characteristics for the nominal scale variables are illustrated below.

Table 56: Some Firm Characteristics, Final Questionnaire.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational size 2005</td>
<td>219</td>
<td>2</td>
<td>230</td>
<td>54.74</td>
<td>48.478</td>
</tr>
<tr>
<td>Business size 2005</td>
<td>220</td>
<td>8</td>
<td>500</td>
<td>86</td>
<td>89.548</td>
</tr>
<tr>
<td>Organizational growth</td>
<td>214</td>
<td>-160</td>
<td>160</td>
<td>6.95</td>
<td>36.471</td>
</tr>
<tr>
<td>Relative organizational growth (%)</td>
<td>211</td>
<td>-89</td>
<td>900</td>
<td>42.2</td>
<td>1.0745</td>
</tr>
<tr>
<td>Business growth</td>
<td>212</td>
<td>-1500</td>
<td>300</td>
<td>29</td>
<td>59.969</td>
</tr>
<tr>
<td>Relative business growth (%)</td>
<td>209</td>
<td>-87</td>
<td>540</td>
<td>68.1</td>
<td>98.459</td>
</tr>
<tr>
<td>Number of ventures during 5 years</td>
<td>203</td>
<td>0</td>
<td>300</td>
<td>10.4</td>
<td>28.250</td>
</tr>
<tr>
<td>Number of ventures without outliers &gt; 25</td>
<td>195</td>
<td>0</td>
<td>25</td>
<td>6.57</td>
<td>5.198</td>
</tr>
<tr>
<td>R&amp;D % of turnover</td>
<td>207</td>
<td>0</td>
<td>50</td>
<td>4.78</td>
<td>5.908</td>
</tr>
<tr>
<td>Firm age</td>
<td>213</td>
<td>3.00</td>
<td>215</td>
<td>38.8169</td>
<td>31.721</td>
</tr>
</tbody>
</table>

Some of the control constructs used in section 4.3 and 4.4 were obtained from the firm-level data set. The descriptive statistics for these constructs; RASE and style of management, are provided below.

---

81 Business size year 2005 ranged from 8 to 500 million SEK, which is roughly $ 0.96 million to $ 68.5 million ($1 ≈ SEK 7.3 during the time of data collection).

82 Three outliers with more than 500% organizational growth were removed, due to the large risk of growth reflecting organizational mergers or a very small initial size, rather than organic growth.

83 Three outliers with more than 1000% business growth were removed, because of the large risk that they reflect organizational mergers or a very small initial size, rather than business growth.

84 An outlier with 320% in R&D spending was removed.

85 Two firms were less than five years old (2005) even though the SCB data file was supposedly including only older firms.
Appendix

### Table 57: Resource Acquisition Self-efficacy (RASE).

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own resources</td>
<td>208</td>
<td>1</td>
<td>10</td>
<td>7.41</td>
<td>2.448</td>
</tr>
<tr>
<td>Family/friends</td>
<td>136</td>
<td>1</td>
<td>10</td>
<td>2.92</td>
<td>2.614</td>
</tr>
<tr>
<td>Suppliers etc</td>
<td>170</td>
<td>1</td>
<td>10</td>
<td>3.82</td>
<td>2.424</td>
</tr>
<tr>
<td>Customers</td>
<td>169</td>
<td>1</td>
<td>10</td>
<td>3.99</td>
<td>2.636</td>
</tr>
<tr>
<td>Partners/board etc</td>
<td>169</td>
<td>1</td>
<td>10</td>
<td>4.66</td>
<td>2.810</td>
</tr>
<tr>
<td>Private investors</td>
<td>148</td>
<td>1</td>
<td>10</td>
<td>3.99</td>
<td>2.754</td>
</tr>
<tr>
<td>Almi</td>
<td>164</td>
<td>1</td>
<td>10</td>
<td>5.32</td>
<td>2.848</td>
</tr>
<tr>
<td>Commercial creditors</td>
<td>153</td>
<td>1</td>
<td>10</td>
<td>5.18</td>
<td>2.968</td>
</tr>
<tr>
<td>Banks</td>
<td>201</td>
<td>1</td>
<td>10</td>
<td>7.86</td>
<td>2.365</td>
</tr>
<tr>
<td>Venture capitalists</td>
<td>163</td>
<td>1</td>
<td>10</td>
<td>4.95</td>
<td>3.065</td>
</tr>
<tr>
<td>Industrifonden</td>
<td>135</td>
<td>1</td>
<td>10</td>
<td>4.24</td>
<td>2.610</td>
</tr>
<tr>
<td>Public body loans?</td>
<td>127</td>
<td>1</td>
<td>10</td>
<td>3.95</td>
<td>2.642</td>
</tr>
<tr>
<td>EU subsidy</td>
<td>165</td>
<td>1</td>
<td>10</td>
<td>5.72</td>
<td>2.908</td>
</tr>
<tr>
<td>Other source</td>
<td>10</td>
<td>1</td>
<td>8</td>
<td>3.00</td>
<td>2.944</td>
</tr>
<tr>
<td>Parent company</td>
<td>158</td>
<td>1</td>
<td>10</td>
<td>6.97</td>
<td>3.325</td>
</tr>
<tr>
<td>Sum RASE items</td>
<td>203</td>
<td>0</td>
<td>108</td>
<td>54.99</td>
<td>23.528</td>
</tr>
</tbody>
</table>

### Table 58: Style of Management.

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loose control</td>
<td>222</td>
<td>1</td>
<td>10</td>
<td>4.21</td>
<td>2.377</td>
</tr>
<tr>
<td>Informal relations dependent</td>
<td>222</td>
<td>1</td>
<td>10</td>
<td>5.44</td>
<td>2.232</td>
</tr>
<tr>
<td>Formal processes (reversed)</td>
<td>221</td>
<td>1</td>
<td>10</td>
<td>5.94</td>
<td>2.204</td>
</tr>
<tr>
<td>Adaptability attitude</td>
<td>222</td>
<td>2</td>
<td>10</td>
<td>6.80</td>
<td>1.861</td>
</tr>
<tr>
<td>Free leadership style</td>
<td>222</td>
<td>1</td>
<td>10</td>
<td>5.77</td>
<td>2.309</td>
</tr>
<tr>
<td>Situation over role description</td>
<td>220</td>
<td>1</td>
<td>10</td>
<td>5.62</td>
<td>2.219</td>
</tr>
</tbody>
</table>

### Data’s Correspondence to the Population

In the SCB file there is data about the population that can be compared with the firm-level sample.

Industry Distribution Patterns

The industry distribution of the firms responding to the sample, as indicated in the returned questionnaires, is given to the left in figure 41. According to this graph there seems to be a large overrepresentation of firms in the category Other Manufacturing. A manual check was made to investigate whether this pattern reflects the tendency of firms to respond, or a difficulty for firms to identify the correct industry category. In the manual check, I went through all the non-anonymous answers for firms in Other Manufacturing, and compared their responses with the industry classification given in the SCB file. Of the 65 non-anonymous answers, only 14 firms actually belonged to Other Manufacturing. Among the rest, 19 firms belonged to Electronics & Optics and 7 firms belonged to Vehicle & Transport, according to SCB’s classification. Two types of divergence between firms’ categorizations and SCB categorization were particularly common. First,
many firms claimed to be in Other Manufacturing, not viewing their products as being Machinery, while SCB categorize their products as such. Second, several firms manufacturing medical equipment identified themselves with Other Manufacturing, but SCB puts these firms in Electronics & Optics.

Assuming that anonymous firms diverge from SCB categorization to the same extent as non-anonymous firms, makes it possible to estimate the total divergences in the collected data. This estimate is based on the ratio between corrected answers for each category and the amount of non-anonymous answers in Other Manufacturing. Multiplying the ratios with the total number of Other Manufacturing responses gives as an estimate of industry distribution that can be compared with the distribution in the SCB file for the purpose of evaluating sample representativeness problems. The estimated distribution is illustrated to the right in figure 41. Scores are given as percentages in order to facilitate comparison between sample and population despite the large difference in set size.

![Figure 41: Industry Distribution; Responses vs. Estimated.](image)

**Size Patterns**

Size distribution among responding firms corresponds reasonably well with the SCB data about the population\(^{86}\). However, comparing the collected size data with the population data there are two complicating factors that make it unrealistic to expect the distributions to be identical. First, the SCB data is from 2004, while the collected data is from 2005. Second, the SCB data is given only as size classes, while the collected data consists of specific values given by the respondents. SCB’s size classes are not theoretically derived for this study, and the value range of the size classes are increasing, making statistic assessment complicated. See figure 42 below for a comparison.

---

\(^{86}\) A Levene test of equality of variances reveals that there is no statistically significant difference between the estimated values for the sample and the population, when it comes to mean industry categorization. It should be taken into account that industry is a category variable, which does not allow for a meaningful interpretation of mean values.
Since the SCB data is aggregated into classes, it is not possible to recreate the actual size values and make a statistical test of the distribution correspondence. The collected data, on the other hand, can be transformed into SCB classes, but as the class ranges are not constant, it is not possible to make a strict evaluation of difference in means, and so forth.

Transforming the collected data into the same scale as the SCB variables and comparing it to the population reveals that smaller firms appear to be slightly underrepresented in the collected data. 42% of the responses came from firms with 50 or more employees, even though these firms only represent 27% of the (2004) population (see figure 43 below). The business size (i.e turnover) distribution follows a similar pattern. Even though the significance of this difference cannot be evaluated, there are several possible explanations that contribute to the observed pattern.

---

**Figure 42:** Organizational Size Distribution; Fixed vs. variable (SCB) Size Class Ranges.

Transforming the organizational size data in the sample to SCB classes and performing a Levene test of equality of variances reveals that the mean for the sample is an organizational size of 5.4 (i.e. in the 20 - 49 range) and the mean for the population is 5.0, and that the difference in means is 0.3735 and significant on the 0.000 level. Conclusions from this test should be drawn with caution given that the data is from different years and that it is difficult to interpret what a size difference of 0.3735 means when using an ordinal scale with non-uniform ranges of the underlying measure.
Figure 43: Organizational Size (left) and Business Size (right) in the Firm-level Data Set (2005), Compared to the Population (SCB, 2004).

- A frequency analysis shows a tendency among respondents to approximate answers with even numbers, such as 20, 50, 60 or 100 employees. The figures above are therefore misleading due to the choice of size class range limits (i.e., cut off at 19, 49, 99 and so on).

- Most firms in the sample have a positive average growth rate, suggesting that more firms might have moved up in size class than down between 2004 and 2005. It can nevertheless not be ruled out that smaller firms may have been less prone to answer the survey than larger firms. To the extent that this is true, and the reason smaller firms are less likely to answer the survey has do with what is investigated, there is a risk for a non-response bias of a magnitude related to the size of the actual under-representation.

Venture Activity Levels

When it comes to representativeness in business development activity, which is among the most important issues, it seems that the firms in this data set have largely the same overall activity levels as the population, the latter being estimated through the phone interview data. The mean number of venture attempts over the last five years was 6.57 (standard deviation 5.198) in the final surveys and 6.94 (standard deviation 5.544) in the phone survey, which appears very close.
Data Set 3: Venture-level Data Collected With the Final Questionnaire

Data set 3 was collected from the firms in data set 2, and therefore has the same firm and respondent characteristics. After excluding: i) some incompletely filled out surveys, as mentioned above; ii) six ventures from the five firms removed from the firm-level data set because they were mainly service firms; iii) eight ventures where respondents indicated that the venture in question was the first venture; and iv) nine ventures from the firms that were too large, the resulting data set contains 274 cases.

Venture Characteristics

The venture status variable reveals that most ventures seem to be either finished or well on their way: i) 131 (48.9%) ventures have been completed and are now integrated in the ongoing business of the firm; ii) 94 (34.3%) ventures are still in progress; and iii) 20 (7.3%) ventures have just started. 23 (8.4%) ventures were terminated before completion (6 missing values).

Most ventures are started by firms with previous business development experience. Figure 44 below display the number of ventures in the sample for each level of experience, with business development experience increasing towards the left on the x-axis.

---

Figure 44: Venture Attempts Relative to Business Development Experience.

---

88 The first venture is the venture the firm in question was founded through. These 9 ventures are excluded from analysis as they are start-up ventures rather than corporate entrepreneurship ventures.
When it comes to the origin of the opportunity, it would seem that most ventures are technology driven, even though many rely on ideas and inspiration from the external environment, which theorists usually assume concerns market information.

The opportunities are, on average, perceived as large rather than small, and the ventures seem concern business related motives rather than personal or other motives. Ambitions to acquire knowledge of presumed strategic importance appears to coincide with the motives for venturing (for further information see the tables in section 4.1 and 4.2).

**Data’s Correspondence to the Population**

The 222 valid firms answering the final survey claim to have started 2138 ventures. Removing nine outliers that started more than 25 ventures (see figure 45 below) generates the number 1280.5. This number appears more credible, especially since none of the firms reporting 30 or more ventures were particularly large (all but two had less than 60 employees 2005), implying that some of their reported ventures are not substantial business development efforts. Taken together, the ventures in the data set should represent 21.4% of the ventures performed by the reporting firms.

Data set 3 contains information about 274 of these ventures. The average firm hence reported 1.23 ventures, which is a far better response than expected.

![Figure 45: Number of Ventures per Firm; With Outliers and Without Outliers (right).](image)

Largely, however, representativeness of the venture data set hinges on the randomness of the sample and the absence of bias in the collected data. Lacking a set of ventures to draw a sample from, the sampling was done on the firm level. This means that the venture-data was collected from firms in a random sample. Regarding the ventures, this investigation left it to the respondent to select which ventures to include in the survey (see section 3.3.2).
Assessing the correspondence between the collected data and the population of ventures is not possible, since, with one exception, there is no available data for that population. During the telephone interviews, respondents were asked to state the number of product development ventures and market development ventures they had done from 2001 to 2005. The distribution of market versus product development was 28% and 73% respectively. These proportions correspond relatively well to the distribution of ventures captured by the subsequent survey: 31% of those ventures are on the high side of the scale of the new customer item ($mdev_1 >= 6$), and 77% of the ventures are on the high side of the scale of substantial product development ($pdev_2 >= 6$). These patterns suggest that the final survey was relatively successful when it comes to capturing a representative set of ventures, in terms of their business development direction and extent.

In order to check for any preponderance in this selection, 36 respondents were asked ex post, via e-mail, how they selected the ventures they reported. 15 answers were obtained, and the results were as follows:

<table>
<thead>
<tr>
<th>Selection criteria</th>
<th>Number of answers</th>
<th>% of answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available examples</td>
<td>6</td>
<td>40%</td>
</tr>
<tr>
<td>Most interesting</td>
<td>2</td>
<td>13%</td>
</tr>
<tr>
<td>Top of mind</td>
<td>1</td>
<td>7%</td>
</tr>
<tr>
<td>Latest venture</td>
<td>1</td>
<td>7%</td>
</tr>
<tr>
<td>Available insight</td>
<td>1</td>
<td>7%</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>74%</td>
</tr>
</tbody>
</table>

The highest risk of bias exists within the arguments “most interesting” and “top of mind”. This risk occurs if there is some attribute of ventures that: i) has something to do with the investigation; and ii) make them stand out more in terms of increasing the probability for reporting. One of the two ”most interesting” ventures was chosen because it was the “most successful” venture. The other was chosen because it was the “largest, latest and most complex”. Overall, this limited check does not indicate any tendencies for large bias problems. (Four respondents misunderstood the follow-up question altogether.)
Appendix 7: Development and Pre-testing of the Online Instrument

The online version of the questionnaire was developed in collaboration with a web design expert. Due to limitations in the underlying software, we made a first version with all questions (part 1 and 2) on the same page. Moreover, the layout and look of the web page generated by the software was totally different from the one in the paper questionnaire, leading to efforts being required in order to manually tailor each question and its answer alternatives. The result was a web page with 194 questions, amounting to 11 pages when printed. There was also a start page with instructions and an ending “thank you” page. Each page was designed to be as identical to the corresponding sections in the paper questionnaire as possible, in an attempt to avoid instrument bias.

When this test version of the online questionnaire was finalized and the various links etcetera seemed to work, we put it on an available web location for pre-testing. The objective was to make sure that the questionnaire worked from a technical point of view (storing data in the right locations in the database etcetera), and to evaluate the user interface. A separate site was used for the pre-test to avoid making the links to the final run of the data collection available to people outside the target population. By using separate sites, the risk of unauthorized data entry could be mitigated by simply taking down the test version once the test was completed, thereby making the more publicly known URLs unable to reach the database.

Approximately 200 e-mails, asking for assistance with the pre-test, were sent to friends and relatives. These test respondents were provided a link to the start page and an instruction to enter whatever they wanted, in order for the technical functioning of the online solution to be evaluated. The time limit for responding circa two days. After receiving approximately 50 entries in the database, and roughly 20 e-mails with feedback, it was clear that the instrument suffered from two major problems and a number of minor problems. The minor problems referred to issues such as unclear or “broken” links. A number of the test respondents argued that the questionnaire was far too long. Some of the feedback concerned suggestions about wording and scales. However, few of these suggestions could be incorporated at this late stage, but were nevertheless recorded for later versions of the survey. One of the major problems was that a few (less than 5) respondents experienced a loss of entries in part 2 (venture-level questions). It seemed that, for these respondents, clicking on the radio buttons for venture 2 and 3 unchecked the clicks for venture 1. The other major problem was that the database only captured data for questions 1 to 114, leaving all remaining data fields empty.

In order to solve the issue of lengthiness, we changed the structure of the survey and implemented it as three different questionnaires instead of just one. This enabled a layout with 47 firm-level questions (not counting the RASE item’s 14 sub questions) on one page and 45 venture-level questions on another. On the final page, there was only 1 question, asking the respondent to provide an e-mail address, in case he or she was interested in getting the result report or participate in the seminar (see section 3.3.2). A benefit of this solution was that it allowed respondents to enter information about as many ventures
as they want. A drawback was that each venture had to be manually linked to the corre-
sponding firm (based in IP addresses registered by the survey software). The result was
the following on-line data entry process:

1. The respondents received links to the online version of the survey in the cover let-
ter and in reminders.

2. These links took respondents to a start page with instructions, example questions,
contact information and a start button.

3. Clicking the start button took respondents to the first questionnaire, opened in a
new window, with the firm-level questions (part 1). The initial browser window
simultaneously loaded an instruction page, identical to the start page but without
the continue button, so that this information remained available. In order to miti-
gate problems with multiple entries and data conflicts, we made it impossible for
the respondents to go back to the start page from the instruction page.

4. The bottom of the first questionnaire featured a continue button. Clicking this
button submitted the entries to the database and directed the respondent to the
page for venture-level questions (part 2).

5. At the end of this second questionnaire, there was a similar button, redirecting
respondents to an intermediary page with two choices: to finish, or to enter infor-
mation about another venture.

   a. Clicking the first choice caused the venture-level questionnaire to respawn.
      This facilitated an unlimited number of submissions to part 2.

   b. Clicking the finish button redirected the respondent to the third question-
      naire, which also was the ending page.

6. Clicking a “close window” button at the bottom of the third questionnaire ended
   the session.

The entire online survey consequently included six different web pages (start page, first
questionnaire, second questionnaire, intermediary page, end page, and the instruction
page), linked together so that the first questionnaire could only be answered once in one
session, but the second questionnaire could be answered an unlimited number of times.
The two major problems of the earlier solution disappeared thanks to the new structure.
It also made the interface less overwhelming for the respondent, as they faced a page with
49 questions when starting the survey instead of nearly 200. The new version was then
tested by sending a second round of e-mails, to other friends and relatives, generating
about 30 new answers. The only reported problem was that the image for the continue
button did not appear for one respondent, who used a Firefox webbrowser on a Linux
machine. However, since the redirection worked and the problem could be expected to
surface only for very few respondents, we left it unsolved.
Appendix 8: Descriptive Overview of Corporate Entrepreneurship in Swedish Manufacturing Firms

This appendix aims at describing the extent and types of business development occurring in the population studied. It builds on information gained directly from top managers through telephone interviews (see section 3.6 regarding method, and appendix 6 regarding the data). However, at the end of this appendix, there is complementary information summarized from another study of development activities in Swedish manufacturing firms: An SCB report from 2006. While this report overlaps the phone survey in terms of population and studied time period, the match is not perfect. The later part of the appendix therefore starts with an upfront presentation of the differences between the two studies.

This appendix should improve the readers’ understanding of the studied phenomena, their background, and the context in which they occur. In addition, the studies summarized in this appendix corroborate important constructs in the research model, and provide empirical support for the inclusion of some of the variables and constructs that act as controls in hypothesis testing. The concluding summary section below contains the most important points.

The telephone survey provided quantitative information about the extent of corporate entrepreneurship and some of the costs and effects of business development activities. It also provided a more general understanding of business conditions during the period of 2001 to 2005, as perceived by the top managers themselves. This is summarized as qualitative patterns regarding business circumstances – a section based on dominating themes in qualitative information from the respondents. The SCB study, on the other hand, provides some cross-validation of findings, and refined insight into costs, effects and, obstacles of business development.

Summary of Findings From the Phone Survey

To give a structured account of the available information, it seemed appropriate to start with an overview of venturing activity levels, and then to move on to costs and effects. A summary of the additional information, that surfaced during the interviews, regarding conditions that the firms faced during the period studied finishes this first section of the appendix.

Extent of Venture Efforts

Of the firms participating in the survey, 89.8% had made at least one attempt to develop their markets or products through corporate venturing. This value can serve as an estimate for the activity level in the population, given the high response rate and the randomness of the sample. More specifically:

\[ \text{SCB (2006) finds that 58.6\% of the firms had made product innovations. This estimate is lower than mine – as was expected because of the shorter time period studied and the exclusion of market development.} \]
Appendix

- 81.2% of the respondents said that their firm had been making at least one market development attempt.
- 85.5% of the firms had made at least one attempt to develop products.
- 61.5% of the firms reported involvement in both types of internal business development.

Using the average activity levels (excluding outliers with more than 55 ventures) as an estimate, suggests that, in total, 17 179 venture attempts were made in the population during the five year period. This can be compared to the 546 new firms started in the industries during the same period (data from SCB).

The following sections describe in more detail the entrepreneurial activities in different industries and size classes.

**Venture Attempts in the Investigated Industries**

In total, the phone interview respondents claimed that their firms’ had made 3158 venture attempts during the period. This should be seen as an approximation of the actual value, since respondents were often uncertain about the exact number. In table 60 below, the set of venturing attempts is divided into two broad categories, based on the business development direction: i.e. *market development attempts* and *product development attempts*. (Some attempts to enter markets with new products may have been counted twice, once in each category, due to the way questions were formulated.)

**Table 60: Corporate Venture Attempts, Industries and Totals.**

<table>
<thead>
<tr>
<th>Year 2001-2005</th>
<th>Total</th>
<th>Electrics &amp; Optics</th>
<th>Vehicle &amp; Transport</th>
<th>Other Machinery</th>
<th>Other Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market development ventures</td>
<td>870</td>
<td>292.5 (25.4%)</td>
<td>126 (31.1%)</td>
<td>351.5 (38.3%)</td>
<td>100 (14.5%)</td>
</tr>
<tr>
<td>Product development ventures</td>
<td>2288</td>
<td>857.5 (74.6%)</td>
<td>279 (68.9%)</td>
<td>566 (61.7%)</td>
<td>585.5 (85.4%)</td>
</tr>
<tr>
<td>Sum. venture attempts</td>
<td>3158</td>
<td>1150 (100%)</td>
<td>405 (100%)</td>
<td>917.5 (100%)</td>
<td>685.5 (100%)</td>
</tr>
</tbody>
</table>

Fractions occur because respondents sometimes answered by giving ranges (e.g. “10 to 15 product development attempts”) which were coded with the middle value.

Overall, product development attempts appears to be almost three times as common as market development attempts, but the proportions vary between the industries. In Other Manufacturing, there is a particularly strong dominance of product development over market development, with the former being about five times more common than the latter. In Other Machinery, on the other hand, there is a higher proportion of market development efforts than in the other industries.

Some of the respondents were asked to estimate the portion of market development attempts that targeted *new customer segments* versus those that targeted *new markets* (usually respondents talked about geographical markets here). 188 respondents were able to make this estimation, and the patterns are presented in the following figure.
A pattern emerges, suggesting that while the portion of market development versus product development varies substantially (11.5% to 37.7%), the proportion of attempts to target new segments (within the set of market development attempts) appear to be largely the same in all the industries. Pursuit of new segments constitutes approximately 40% of all market development ventures.

**The Activity of Firms**

The differences in activity level have many possible explanations. Not all firms have reason to change their business within a given time period. In addition, the need, costs and effect of business development efforts may vary between firms as well as between industries (see the summary of the SCB study below). It is therefore likely that the firms’ corporate entrepreneurship activity levels vary.

**Industry Patterns**

In the chart below, the firms in each industry are divided into three groups: Inactive firms; firms with low activity; and firms with high activity. The cut-off point between low and high activity is 11.38, which is the mean activity level for all active firms (calculated when excluding five outliers with more than 55 venture attempts).
The distribution of firms with high versus low activity levels seems to be largely the same in all the investigated industries. Other Machinery, which has the highest portion of market development attempts, has the lowest average total of development attempts per firm, as well as the lowest portion of highly active firms.

**Table 61:** Corporate Venture Attempts per Firm, Industries and Totals.

<table>
<thead>
<tr>
<th>Year 2001-2005</th>
<th>Total</th>
<th>Electrics &amp; Optics</th>
<th>Vehicle &amp; Transport</th>
<th>Other Machinery</th>
<th>Other Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of population that gave useful estimates on number of ventures</td>
<td>13.4%</td>
<td>15.9%</td>
<td>12.5%</td>
<td>13.3%</td>
<td>10.4%</td>
</tr>
<tr>
<td>Average market development attempts per firm</td>
<td>3.72</td>
<td>3.95</td>
<td>3.82</td>
<td>3.74</td>
<td>3.00</td>
</tr>
<tr>
<td>Average product development attempts per firm</td>
<td>9.76</td>
<td>11.59</td>
<td>8.72</td>
<td>6.15</td>
<td>9.84</td>
</tr>
<tr>
<td>Average Attempts per firm (standard error)</td>
<td>11.69</td>
<td>(1.90)</td>
<td>12.47</td>
<td>(2.47)</td>
<td>9.92</td>
</tr>
</tbody>
</table>

One firm was excluded, as it was an extreme outlier with 300 new products.

Note that missing values are handled by pair-wise exclusion; the bottom row is therefore not the sum of the two preceding rows.

Table 61, above, demonstrates that firms in the Electrics & Optics industry are on average more active than firms in the other industries. Furthermore, they are more active in both product and market development. However, due to the uncertainty in the estimates the differences in total activity levels do not qualify for statistical significance (0.1 level). The only pattern that is statistically significant is that firms in the Other Machinery industry generally make fewer product development attempts than firms in Electrics & Optics and Other Manufacturing.

**Size Patterns**

The tendency to engage in development also varies with organizational size (see table 62 below). The largest firms are more active than all other firms, having a significantly higher average of total attempts per firm. Moreover, the largest firms’ average product development activity is significantly higher than all other firms’ except those in the 50-99 employees range.

**Table 62:** Average Number of Venture Attempts per Firm in Each Size Class.

<table>
<thead>
<tr>
<th>Year 2001-2005</th>
<th>per firm 10-19</th>
<th>per firm 20-49</th>
<th>per firm 50-99</th>
<th>per firm 100-199</th>
<th>per firm 200-499*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of firms interviewed</td>
<td>67</td>
<td>85</td>
<td>51</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>Approximate % of population interviewed</td>
<td>10.1%</td>
<td>14.1%</td>
<td>18.9%</td>
<td>12.9%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Market development attempts per firm</td>
<td>2.93</td>
<td>3.68</td>
<td>4.44</td>
<td>4.57</td>
<td>4.13</td>
</tr>
<tr>
<td>Product development attempts per firm</td>
<td>8.80</td>
<td>6.38</td>
<td>11.47</td>
<td>7.36</td>
<td>19.13</td>
</tr>
<tr>
<td>Total attempts per firm</td>
<td>11.73</td>
<td>10.12</td>
<td>12.11</td>
<td>12.14</td>
<td>23.25</td>
</tr>
</tbody>
</table>

One firm was excluded, as it was an extreme outlier with 300 new products.

* Note that the size classes are different from those in tables 67 and 70. Also, the largest class may include firms with more than 250 employees.
Concerning market development, table 62 above suggests that firms with fewer than 50 employees make fewer market development attempts than larger firms, a difference that is very close to qualifying for significance at the 0.1 level. Furthermore, figure 46 revealed that the there are only small differences between the industries, when it comes to the amount of attempts to enter new markets, compared to the amount of attempts to enter new customer segments. The following table shows the corresponding distribution over organizational size categories.

Table 63: Average Specific Market Development Attempts per Firm in Each Size Class.

<table>
<thead>
<tr>
<th>Year 2001-2005</th>
<th>10-19</th>
<th>20-49</th>
<th>50-99</th>
<th>100-199</th>
<th>200-499*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entering new markets</td>
<td>1.57</td>
<td>2.62</td>
<td>3.08</td>
<td>2.19</td>
<td>4.00</td>
</tr>
<tr>
<td>Entering new segments</td>
<td>0.96</td>
<td>0.99</td>
<td>0.95</td>
<td>1.00</td>
<td>0.57</td>
</tr>
<tr>
<td>Portion new segments vs. new markets</td>
<td>61.1%</td>
<td>37.8%</td>
<td>30.8%</td>
<td>45.7%</td>
<td>14.3%</td>
</tr>
</tbody>
</table>

* Note that the size classes are different from those in tables 67 and 70. Also, the largest class may include firms with more than 250 employees.

The smallest firms are significantly less prone to attempt new market entries than firms of all other size groups except those in the 100-199 range (0.1 level). The differences in segment entry are not significant. However, there is a notable difference in the proportions of market development attempts. The lower average of market entry attempts in the smallest firms makes the new segment entries appear relatively common. This contrasts the smallest firms to the largest, where segment entries are uncommon both in relative and absolute terms.

Overview of Expenses and Effects

Elucidating costs and effects of corporate entrepreneurship is necessary, in order to gain general understanding and sufficient backing for implications. It is also believed that resources spent on development can be an indicator of innovative activity, or a predictor for success or growth (e.g. Klette & Griliches, 2000).

Development Costs

The average spending on development efforts, referred to in this study as R&D spending, was 5.91% of the turnover (excluding an outlier spending 120%). The standard deviation of this estimate from the phone interview data is quite high (6.52), but the estimate is corroborated by the SCB (2006) study, which finds that the average spending among manufacturing firms is 5.86% (+- 1.13 confidence interval). For illustration purposes, eight outliers that spend 25% of the turnover or more on R&D, were excluded when creating the chart in figure 48 below.
Most respondents had to estimate R&D spending, since only a handful of the firms measured it as a separate item in their accounting and control systems. The chart above demonstrates that respondents had a tendency to give numbers that were multiples of 5, such as 5%, 10% and 20%.

Table 64: R&D Spending per Industry (Comparison Data from Table 61, in italics).

<table>
<thead>
<tr>
<th>Year 2001-2005</th>
<th>Electrics &amp; Optics</th>
<th>Vehicle &amp; Transport</th>
<th>Other Machinery</th>
<th>Other Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average % of turnover → R&amp;D</td>
<td>7.64</td>
<td>4.98</td>
<td>5.36</td>
<td>4.10</td>
</tr>
<tr>
<td>Average market development attempts per firm</td>
<td>3.95</td>
<td>3.82</td>
<td>3.74</td>
<td>3.00</td>
</tr>
<tr>
<td>Average product development attempts per firm</td>
<td>11.59</td>
<td>8.72</td>
<td>6.15</td>
<td>9.84</td>
</tr>
<tr>
<td>Average Attempts per firm</td>
<td>13.13</td>
<td>12.47</td>
<td>9.92</td>
<td>12.88</td>
</tr>
</tbody>
</table>

One case with 120% R&D spending was excluded; according to its CEO it is still in its start up phase.

As table 64 above demonstrates, there are large industry differences in the proportion of development costs and number of attempts. Development efforts are associated with the smallest sacrifice of turnover in Other Manufacturing, while the Electrics & Optics industry firms have the highest relative spending (cf. Edling et al., 2007). Interestingly, the variation in development costs between the industries is larger than the variation in venture activity levels. In short, the level of R&D spending seems to depend more on other issues of the industry (and firm) than corporate entrepreneurship activity.
Table 65: R&D Spending per Size Class (Comparison Data From Table 62, in italics).

<table>
<thead>
<tr>
<th>Year 2001-2005</th>
<th>per firm 10-19</th>
<th>per firm 20-49</th>
<th>per firm 50-99</th>
<th>per firm 100-199</th>
<th>per firm 200-499*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average % of turnover → R&amp;D</td>
<td>5.42</td>
<td>5.01</td>
<td>7.14</td>
<td>8.49</td>
<td>4.70</td>
</tr>
<tr>
<td>Market development attempts per firm</td>
<td>2.31</td>
<td>3.66</td>
<td>4.05</td>
<td>3.19</td>
<td>4.57</td>
</tr>
<tr>
<td>Product development attempts per firm</td>
<td>9.01</td>
<td>10.20</td>
<td>7.99</td>
<td>8.63</td>
<td>14.71</td>
</tr>
<tr>
<td>Total attempts per firm</td>
<td>11.32</td>
<td>13.86</td>
<td>12.04</td>
<td>11.82</td>
<td>19.28</td>
</tr>
</tbody>
</table>

One case with 120% R&D spending was excluded; according to its CEO it is still in its start up phase.
* Note that the size classes are different from those in tables 67 and 70. Also, the largest class may include firms with more than 250 employees.

Table 65, above, illustrates that the highest R&D spending is found in firms with 50-199 employees (not significant), even though these do not have remarkably high levels of development activities. Table 63 (far above) suggests that the firms in this range are relatively more engaged in market development efforts, and the higher spending levels may be linked to that pattern. A small but significant correlation (0.18 sig. 0.1) between these two measures in the firm-level sample\(^90\) corroborates this explanation.

The data collected through phone interviews do not distinguish between different categories of R&D costs. SCB (2006), however, includes such information, which could be useful as approximations (see table 67 below).

**Development Effects**

Development has economic importance for the manufacturing firms. In three of the four industries, approxemately 25% percent of the turnover comes from new products. In Electrics & Optics new products represent no less than a 66% share of turnover (SCB, 2006).

The evidence gained from the phone interviews shows that resources and efforts spent on development are correlated with the development of business growth\(^91\). Business growth (logarithm), in turn, appears to have a positive relationship to the number of market development attempts, as well as with the total amount of attempts.

This does not mean that corporate ventures always lead to growth, since the direction of causality is not verified. However, it confirms that corporate entrepreneurship is an activity that tends to be associated with business growth. The number of product development attempts is not significantly correlated with business growth, suggesting that the most common form of corporate ventures (see table 66) does not contribute to growth. Motives may provide some explanations here, e.g. some product development attempts may be undertaken for the purpose of replacing older product versions, in order to maintain sales levels.

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\(^90\) In the 50-199 range, the correlation between R&D spending and the number of market development attempts is stronger: 0.276 (sig. 0.03).

\(^91\) Measured as the logarithm of change in turnover, in order to make the distribution more similar to the normal.
Table 66: Correlations Between Growth, R&D Expenditure, and Development Activities.

<table>
<thead>
<tr>
<th></th>
<th># business dev. attempts</th>
<th># market entry attempts</th>
<th># new market segments</th>
<th># product dev. attempts</th>
<th>Business growth</th>
<th>Log Business Growth</th>
<th>R&amp;D Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of business dev. attempts</td>
<td>1</td>
<td>.399**</td>
<td>.157*</td>
<td>.419**</td>
<td>.933**</td>
<td>.082</td>
<td>.235**</td>
</tr>
<tr>
<td>Number of market entry attempts</td>
<td>.399**</td>
<td>1</td>
<td>.009</td>
<td>.947**</td>
<td>.131</td>
<td>.024</td>
<td>.169*</td>
</tr>
<tr>
<td>Number of new market segments</td>
<td>.157*</td>
<td>.009</td>
<td>1</td>
<td>.346**</td>
<td>.062</td>
<td>.147*</td>
<td>.184*</td>
</tr>
<tr>
<td>Number of market dev. attempts</td>
<td>.419**</td>
<td>.947**</td>
<td>.346**</td>
<td>1</td>
<td>.065</td>
<td>.070</td>
<td>.220**</td>
</tr>
<tr>
<td>Number of product dev. attempts</td>
<td>.933**</td>
<td>.131</td>
<td>.062</td>
<td>.065</td>
<td>1</td>
<td>.045</td>
<td>.139</td>
</tr>
<tr>
<td>Business growth</td>
<td>.082</td>
<td>.024</td>
<td>.147*</td>
<td>.070</td>
<td>.045</td>
<td>1</td>
<td>.541**</td>
</tr>
<tr>
<td>Log Business Growth</td>
<td>.235**</td>
<td>.169*</td>
<td>.184*</td>
<td>.220**</td>
<td>.139</td>
<td>.541**</td>
<td>1</td>
</tr>
<tr>
<td>R&amp;D Spending</td>
<td>.090</td>
<td>.088</td>
<td>.045</td>
<td>.096</td>
<td>.055</td>
<td>.010</td>
<td>.162*</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Moreover, table 66 above suggests that the link between development efforts and growth is far stronger than the link between development efforts and R&D expenditure, making the latter a questionable proxy for entrepreneurship and innovation in these industries. Interestingly, none of the variables were significantly correlated with organizational size.

Additional information about possible costs and effects of corporate entrepreneurship was available in the SCB (2006) report, as summarized in a section below.

Qualitative Patterns Regarding Business Circumstances

During the phone interviews, there were numerous occasions of discussing wide ranges of issues, more or less linked to business development. Many respondents spontaneously commented the overall development of the firm and their industry, while others were asked follow-up questions during the progress of the interviews, as opportunities emerged. Additional insights were gained through some respondents asking for the researcher’s advice on firm-specific problems. The obtained inductive evidence is summarized in the following sections to provide an overview of the life of the studied firms during the first half decade of the new millennium.

It is tempting to specify the number of instances that different issues came up during the interviews, in order to estimate their importance. The risk, however, is that such numbers are misleading, since: i) the respondents were not asked the same questions in a systematic way; and ii) the relevance of an issue may be very high, even though only few respondents mention it, and vice versa. Instead, I grouped the accounts into three broad categories,

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92 In this data set, size variables are ordinal scales, i.e. size classes, which may have influenced the resulting correlation values.
Appendix

and present the dominating themes within each, for the sake of organizing the material. They were then labeled: Industry trends, reasons for corporate entrepreneurship, and venture triggers. When reading the following segments it should be understood that while many respondents talked quite a lot (especially considering how busy they claimed to be), only a minority elaborated on the conditions and reasons for development activities.

Industry Trends
With few exceptions, the industry climate was described as tough and difficult, with two or three years of lower demand and high competition, after an upswing that peaked in 2001 or 2002. The pattern of hardship, decreasing sales, higher cost of raw material and new competition from low-salary countries, is one of the most prevailing themes regarding corporate circumstances. However, it was emphasized to a varying degree by different respondents.

It nevertheless seems that the negative trend had been broken lately, as the majority of that firms talked about previous hardships now do, or expects to do, more business. Several respondents explicitly attribute the improved situation to the development of new products, or to access gained to new markets or segments. Some of them describe similar benefits to development efforts, but with a more positive discourse, such as one CEO of a successful firm claiming that, due to product and process improvements, they were able to expand and even capture market shares from low-salary producers in eastern Europe.

Reasons for Corporate Entrepreneurship
This category of information gives a background to the study of motives, since it summarizes respondents’ explanations for why they pursue corporate entrepreneurship. Many firms claimed that they always work with development, suggesting that continuous development of products and (less commonly) markets, are a natural part of the firm’s internal life. Other firms had not been making developments continuously, but saw a need for such efforts during the period studied. Regardless of the approach towards corporate entrepreneurship, the reasons for it mainly fall into three categories:

- The most persisting reason for venturing was that it was necessary for survival. The rationale was usually that a small firm must develop new products in order to be able to compete against both other small firms and larger firms. A few firms appear to have discovered this somewhat late, as they were trying to “catch up”, but most respondents saw development as something natural for a firm of their size and type. Some respondents indicated that innovation or new solutions were a part of the value offered, and thus a central aspect of the firms’ role within its business environment (cf. external fit, in section 2.1).

- Another prominent reason behind entrepreneurial activities was declining demand or poor profitability of the current products, making renewal of the product range necessary. Decline was often not a surprise to the firm, but a reflection of known product cycles (see below).

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93 The risk of survival bias should be recognized.
Appendix

A third noteworthy purpose of development efforts was related to strategic market priorities. A number of firms claimed that they were able to increase their market share or expand into new markets, usually either through product development or through piggybacking on expanding customers (cf. Terpstra & Yu, 1990). Defensive reasons (i.e. protection of market share) were also mentioned, but quite seldom.

Other more rarely encountered purposes were: to meet a new or higher demand (i.e. an opportunity); to increase profitability of the product mix; or to utilize overcapacity.

Venture Triggers
Respondents sometimes mentioned that development was undertaken in relation to some occurrence within the firm or in the environment. For instance, customers were mentioned as a trigger for venture efforts more consistently than any other cause. Many firms created new products on the direct initiative of customers. Other development efforts were made to make customer specific products or adjustments. Further, several entries into new markets occurred because important customers entered new markets, and consequently desired for their suppliers to expand as well.

Moreover, product life cycles make some extent of product development necessary as old solutions need to be replaced. Ending product life cycles was mentioned as a trigger with approximately the same frequency as competition. While general competitive pressure seems to have been a more pressing concern than usual during the tougher times of the period studied, a handful of the respondents mentioned low cost countries explicitly as a source of competition.

Other triggers were mentioned on a few occasions, including changes in public policy, market structure, and available technology. These triggers were, however, uncommon.

Additional information was obtained from a Statistics Sweden report (i.e. SCB, 2006). Selected information, that might serve as a background for the study of motives and outcome, is presented below. The SCB (2006) report provides data about the same, or largely the same, population as the one studied in this research project. It was useful for improved understanding, interpretations, and method decisions. For instance, knowing more about obstacles to development efforts in Swedish manufacturing SME:s was helpful for verifying the relevance of constructs, and for the selection of appropriate control variables when performing the analysis of venture outcome (RQ4).

This report concerns innovation activities\textsuperscript{94} in Swedish enterprises from year 2002 to year 2004, and contains aggregated statistics about several aspects of product (and process)

\textsuperscript{94} Innovation activities is the "introduction of new or significantly improved" products or processes (SCB, 2006: 10). Firms with innovation activities also include those which have terminated ongoing innovation activities during 2002 to 2004, and those who had ongoing innovation activities at the end of 2004.
development in different industries and firm size classes. However, unfortunately it contains no information about market development activities. For this reason, it only partly overlaps the scope and period of this study (see figure 49 below), but was nevertheless informative for illuminating some of the phenomena of interest.

Aside from the differences mentioned above, the SCB (2006) report is broader, as it has data about all firms with more than 10 employees in Sweden. The findings in the SCB study are relevant, as the sample for the current study is a subset of the SCB sample. (But the material presented in this summary has been selected to come as close as possible to the four industries that are targeted by the current study.) It will therefore refer to “manufacturing firms”, or to “the four industries”, explicitly.

The four industries nevertheless constitute a substantial share of the manufacturing firms (43.9%). In fact manufacturing firm are dominated by the four industries, plus metal product producers95, which can be assumed to share many attributes and problems regarding business and innovation with firms within the four industries. It can therefore be assumed that findings regarding manufacturing firms are informative for this study.

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95 The largest industries within manufacturing, other than the four selected for the study, are metal products (21.7%), food/provisions production (8.6%), and wood products (8.0%). 20% of the firms in the four industries have metal products as secondary or tertiary industry (SNI) code. Metal products include e.g. production of metal, metal pipes, rods, thread, metal cast products, tanks, cutlery, tools, bolts, suspensions and metal structures for the construction industry.
More about Costs and Effects

The data collected through phone interviews does not distinguish between different kinds of R&D costs. However, SCB (2006) includes spending categories and amounts from manufacturing SME:s that can be used as indicators. See the following table.

Table 67: Manufacturing Firms' Spending Patterns Across Size Classes (SCB, 2006).

<table>
<thead>
<tr>
<th>Size</th>
<th>Average total spending, all firms</th>
<th>Average total spending*</th>
<th>Internal R&amp;D*</th>
<th>Bought R&amp;D*</th>
<th>Purchased equipment*</th>
<th>Other purchased knowledge*</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-49</td>
<td>4.16</td>
<td>7.76</td>
<td>2.34</td>
<td>0.32</td>
<td>4.70</td>
<td>0.40</td>
</tr>
<tr>
<td>50-249</td>
<td>2.23</td>
<td>3.23</td>
<td>1.55</td>
<td>0.25</td>
<td>1.34</td>
<td>0.10</td>
</tr>
<tr>
<td>250+</td>
<td>7.17</td>
<td>7.97</td>
<td>5.68</td>
<td>1.45</td>
<td>0.71</td>
<td>0.13</td>
</tr>
<tr>
<td>Total</td>
<td>5.86</td>
<td>7.16</td>
<td>4.75</td>
<td>1.16</td>
<td>1.10</td>
<td>0.15</td>
</tr>
</tbody>
</table>

* Spending is measured as per cent of turnover for firms that have reported innovations. Inactive firms are therefore not included except in the first column. Innovations do not include market development. Size classes differ from the size classes in the telephone interview data, i.e. tables 62, 63 and 65. The information concerns innovation activities between year 2002 and 2004.

For the smallest firms, the most important development expense is the purchase of equipment. These firms also purchase more knowledge than the larger firms. In all other firms, the largest expense is internal R&D.

Regarding development effects, SCB (2006) provides some hints about how the effects of development efforts manifest themselves more concretely, see table 68 below. This is informative because expected effects are likely to have bearing on venture motives (cf section 2.2.2). In particular, the SCB (2006) study confirms that ventures may result in market access and capture of market share for Swedish manufacturing SME:s.

Table 68: Effects Observed to a High Degree in Innovating Firms (SCB, 2006).

<table>
<thead>
<tr>
<th>Industry</th>
<th>Portion of active firms (SCB, 2006)</th>
<th>Increased product range*</th>
<th>New market access or increased market share*</th>
<th>Increased quality*</th>
<th>Increased production flexibility*</th>
<th>Increased production capacity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrics &amp; Optics</td>
<td>64</td>
<td>38</td>
<td>20</td>
<td>30</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>Vehicle &amp; Transport</td>
<td>67</td>
<td>37</td>
<td>18</td>
<td>31</td>
<td>23</td>
<td>26</td>
</tr>
<tr>
<td>Other Machinery</td>
<td>59</td>
<td>30</td>
<td>16</td>
<td>31</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>Other Manufacturing</td>
<td>52</td>
<td>27</td>
<td>20</td>
<td>29</td>
<td>17</td>
<td>26</td>
</tr>
</tbody>
</table>

* Numbers indicate the percentage of active firms (that reported innovations) that observed the effect in question to a high degree. Inactive firms are therefore not included except in the first column. Innovations include product and process development but not market development. The information concerns innovation activities between year 2002 and 2004.

The first three effects in table 68 are referred to as “product effects”, and the last two are referred to as “process effects” (SCB, 2006: 28). Additional observed process effects among industry firms were lower labor costs (24%) and lower material or energy costs (11%). 14% of the firms report the compliance to laws and regulations as an effect of their innovation activities. 11% testify about reduced environmental effects or increased safety.
Obstacles to Development

Previous research suggests that corporate venturing success is not common. For instance, Block and MacMillan (1993) mentioned failure rates of 50%. The telephone interviews did not include questions about obstacles to development, and little information was hence gathered about that, with the exception of spontaneous comments usually referring to lack of financial resources like external “risk willing” capital. However, the SCB (2006) report provides some information about obstacles to product and process innovations.

The tables, 69 and 70, below show the industry and size class patterns. Electrics & Optics, the industry that spends most on R&D and has the highest average number of attempts per firm, has the highest percentage of active firms reporting obstacles in every category. Other Manufacturing, on the other hand, has a smaller portion of active firms reporting obstacles in most categories.

Table 69: Percentage of Active Firms Reporting Categories of Obstacles as Having a High Degree of Hampering Influence (SCB, 2006).

<table>
<thead>
<tr>
<th></th>
<th>All manufacturing firms</th>
<th>Electrics &amp; Optics</th>
<th>Vehicle &amp; Transport</th>
<th>Other Machinery</th>
<th>Other Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of internal financial resources</td>
<td>80</td>
<td>86</td>
<td>83</td>
<td>80</td>
<td>77</td>
</tr>
<tr>
<td>Lack of financial resources from external sources</td>
<td>65</td>
<td>72</td>
<td>67</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>Too high innovation costs</td>
<td>77</td>
<td>80</td>
<td>78</td>
<td>80</td>
<td>71</td>
</tr>
<tr>
<td>Lack of qualified personnel</td>
<td>81</td>
<td>85</td>
<td>78</td>
<td>84</td>
<td>79</td>
</tr>
<tr>
<td>Lack of information about technology</td>
<td>77</td>
<td>85</td>
<td>74</td>
<td>74</td>
<td>73</td>
</tr>
<tr>
<td>Lack of information about the market</td>
<td>77</td>
<td>83</td>
<td>74</td>
<td>79</td>
<td>73</td>
</tr>
<tr>
<td>Difficulties finding collaborating firms</td>
<td>66</td>
<td>74</td>
<td>65</td>
<td>65</td>
<td>66</td>
</tr>
<tr>
<td>Dominance of established firms</td>
<td>78</td>
<td>82</td>
<td>76</td>
<td>79</td>
<td>76</td>
</tr>
<tr>
<td>Uncertain demand</td>
<td>81</td>
<td>87</td>
<td>77</td>
<td>81</td>
<td>84</td>
</tr>
</tbody>
</table>

Lack of internal financial resources, lack of qualified personnel, and uncertain demand are the most commonly mentioned factors that hamper innovation efforts. After that, the main obstacles appear to be lack of information about the market and the dominance of already established firms. (Regarding the latter, it would have been very interesting to see the proportion of firms who consider the influence of incumbent firms to be an obstacle to market development efforts, but that information is not available in the SCB report.) Lack of financial resources from external sources, and difficulties in finding firms for collabor-
ration are not among the top five obstacles in any investigated industry. It may seem as if these categories are unimportant, but they are nonetheless mentioned as having a high hampering effect by more than 60% of the innovating firms in all four industries.

The relative importance of innovation obstacles remain largely the same when investigating different organizational size classes. What is interesting is that larger firms appear more prone to report high hampering influence of most categories of obstacles. It is only the acquisition of finances from external sources that seems to be easier for large firms. Table 70 is a detailed presentation of the reported obstacles.

Table 70: Percentage of Innovating Manufacturing Firms in Each Size Class Reporting Categories of Obstacles as Having a High Degree of Hampering Influence (SCB, 2006).

<table>
<thead>
<tr>
<th>Year 2002-2004</th>
<th>% of firms 10-49</th>
<th>% of firms 50-249</th>
<th>% of firms 250+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of internal financial resources</td>
<td>81</td>
<td>77</td>
<td>83</td>
</tr>
<tr>
<td>Lack of financial resources from external sources</td>
<td>68</td>
<td>61</td>
<td>58</td>
</tr>
<tr>
<td>Too high innovation costs</td>
<td>75</td>
<td>78</td>
<td>81</td>
</tr>
<tr>
<td>Lack of qualified personnel</td>
<td>81</td>
<td>79</td>
<td>90</td>
</tr>
<tr>
<td>Lack of information about technology</td>
<td>76</td>
<td>77</td>
<td>86</td>
</tr>
<tr>
<td>Lack of information about the market</td>
<td>76</td>
<td>78</td>
<td>86</td>
</tr>
<tr>
<td>Difficulties finding collaborating firms</td>
<td>64</td>
<td>66</td>
<td>78</td>
</tr>
<tr>
<td>Dominance of established firms</td>
<td>79</td>
<td>75</td>
<td>83</td>
</tr>
<tr>
<td>Uncertain demand</td>
<td>80</td>
<td>82</td>
<td>86</td>
</tr>
</tbody>
</table>

Note that the size classes are different from tables 62, 63 and 65.

SCB (2006) suggests that internal financial resources play a particularly important role in firms’ development efforts, but it is also clear that financial resources in general is a concern for managers wishing to innovate. The impact of lack of market information and demand uncertainty corroborates the relevance of market uncertainty as a potential source of difficulties in the venture process. Similarly, the study confirms that dealing with technical uncertainty is a commonly occurring difficulty in product development that may have a negative effect on the venture process. The lack of qualified personnel may be an indication of information or knowledge deficits concerning markets or products (i.e. related to uncertainty), but it may also be an issue of solving a specific problem or of inexperience with business development in general. In the latter case, lack of competence may pose an obstacle to development because inadequate processes and/or poor understanding of critical activities make it difficult for the firm to plan and manage the venture efforts. This information empirically corroborates some of this study’s most important theoretical constructs (market and technical uncertainty) and suggests variables that should be controlled for (i.e. RASE and venture experience) when testing hypotheses about venture outcome.
Summary

Venture activity as a firm-level measure is related to business growth. Even though amount of product development ventures, as an individual venture category, is not significantly correlated to business growth, the product effects discussed above suggest that there could be economic effects like business growth.

When talking to practitioners, they confirmed these patterns but also suggested other reasons for development. The period studied was associated with defensive motives to development, such as survival and need for renewal of product ranges. The single most prominent theme of spontaneous comments, however, was the pressure, request, or demand from customers. Customers frequently push small and medium sized manufacturing firms to adapt or develop products, and to follow them in their own market development efforts.

Industry Patterns

Electrics & Optics is the industry with the highest firm-level activity, even though it appears to be the most difficult, industry judging from the obstacles to innovation reported by SCB (2006). On the other hand, these firms also spend more resources on development efforts. This may explain why these firms can increase the product range and obtain a larger portion of their revenues from new products than firms in the other three industries, despite the many obstacles.

In contrast, firms in Other Machinery have the smallest average firm-level activity in product development, and seldom get access to new markets by the development of products. This may, nevertheless, be somewhat balanced by a relatively large market development activity. Yet, these firms have the lowest total activity level and also the lowest need and demand for innovations.

Other Manufacturing has the smallest relative amount of market development efforts. However, the large portion of firms with a high activity level indicates that there also are some very active firms. Even so, this industry reports the lowest portion of revenues from new products (19%), but also the lowest innovation obstacles and costs.

Vehicle & Transport equipment manufactures constitute the smallest industry. It do not distinguish itself in any particular way. The category has largely the same proportion of activity as Electrics & Optics, with about one third of the ventures aiming at product development and 40% of the market development attempts targeting new segments. One potentially interesting observation is that these firms report more process effects than the other industries, and gains greater production capacity and flexibility from innovation.

In the survey, data is collected at the venture level. Therefore each venture can be given a score on both extent of market development and extent of product development, which will provide a more accurate measure of correlations with other variables.

The creation of new value through increased product ranges, improved quality, and providing of new offerings to customers in new markets.
Appendix

Size Patterns
Large firms (over 200 employees) are far more active in product development, resulting in a higher total activity level (average attempts per firm). When it comes to market development, the tendency is unclear. However, splitting the sample in two at 50 employees, reveals that smaller firms are less active in market development. Moreover, it appears that the smaller firms enter fewer markets, while the largest SME:s enter fewer segments.

Internal development represents the largest portion of development costs. But the smallest firms also purchase knowledge more, compared to larger firms. R&D spending is higher in firms with 50-199 employees than in other firms, even though these do not have remarkably high levels of development activity.

The fact that large firms enter more new markets might be explained by a larger need for market development, or by market development efforts being more resource demanding than smaller firms can handle. The causality can also be the opposite, i.e. some firms become large because they develop their markets.

Implications for the Study
The evidence discussed so far provides an overview of the activities in the population. It demonstrates that there are patterns of activity, costs, effects, and obstacles that vary over industry and size categories. As a result, it can not be ruled out that industry and organizational size might influence the venture process. That potential influence should therefore be taken into account in the analysis. In particular, size is included as a control variable when investigating venture difficulties and outcome, while the influence of industry on outcome is considered in section 4.4.

Another implication is the confirmation of constructs in the main model (figure 10). Neither the telephone interviews nor SCB (2006) reveal any information on the size or source of opportunity, the obstacles and effects of market development, or the lack of ability as a factor for activity level and effects. However, they did reveal substantial information about the activities among the type of firms studied, and issues potentially influencing venture outcome that will be useful in later stages of analysis.

- Specifically, both types of uncertainty are confirmed as being obstacles in venturing in this sample. Problems caused by a lack of qualified personnel may be related to market or technical uncertainty (lack of information or knowledge), but it may also relate to venturing difficulties that could be remedied by business development experience. Previous engagement in ventures should be a source of knowledge about how to manage the venture processes, how to set up transformation processes, and how to work with the achievement of external fit. Consequently, multivariate models investigating uncertainty and outcome should control for (lack of) venture experience, in order to separate uncertainty from more general knowledge deficits.
Further, the SCB (2006) study confirms that lack of resources is a common obstacle for development efforts, particularly in SME:s. The acquisition of resources should therefore be an important activity in corporate entrepreneurship, and something which a study of factors influencing venture outcome should include. This aspect is reflected by the RASE measure in the current study.
Appendix 9: Prediction of Outcome

Figure 50: Outcome vs. Expectation (normal), Outcome as Survival/Failure (italics).