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Philosophiae Doctor (PhD), Thesis number 2014:10

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Norwegian University of Life Sciences  
School of Economics and Business

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## SME Growth: The Role of Collectively Competence- based Resources

Vekst i små og mellomstore bedrifter:  
Betydningen av kollektive kompetanse-  
baserte ressurser

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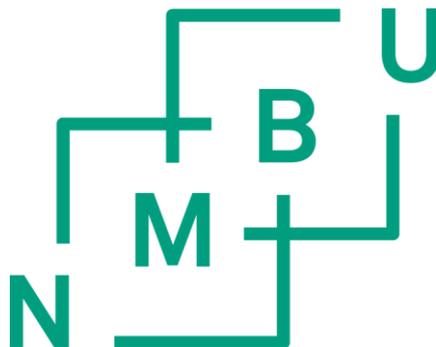
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## **Summary**

High-growth firms contribute disproportionately to job and value creation. Previous research on high-growth firms has shown that high-growth firms are characterized by innovative qualities, have important spillover effects, and are, in general, smaller and younger than other firms. To experience growth, a firm must have a competitive advantage. By applying a resource-based framework, this thesis analyzes high-growth firms from a management perspective and aims to understand how small and medium-sized enterprises configure and exploit their collectively competence-based resources to achieve high growth.

In so doing, this thesis contributes to the literature in three ways: first by examining the direct effects of collectively competence-based resources on company growth; second, by applying mediation and moderation effects to examine how high-growth firms exploit and configure their resources; and, third, by applying different growth indicators and contributing to the ongoing discussion regarding problems with the measurement and conceptualization of firm growth.

Paper I was based on a questionnaire for high-growth firms in Norway and shows that innovativeness is a factor in whether firms become high-growth firms and that innovativeness acts as a full mediator for learning and a creative climate. Paper II was based on a questionnaire for firewood producers in Norway and shows that customer orientation and innovativeness are important drivers in the growth of microfirms. Papers III and IV were based on a questionnaire administered to high-growth firms in Norway. Paper III shows that board composition is likely to differ between high-growth firms and other types of firms. Paper IV shows that the mode of growth affects the impact of entrepreneurial orientation on growth.

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## **1. Introduction**

I have been intrigued by high-growth firms and small and medium-sized enterprises (SMEs) since I was introduced to the topic as a masters student. The opportunity to learn more about high-growth firms emerged when I was granted a PhD fellowship. Since then, I have been driven to learn more about what drives companies that grow rapidly. The idea of using such knowledge to inform future entrepreneurs and small firm managers drives me forward. Additionally, the goal of communicating with policy makers to improve circumstances for entrepreneurs in Norway has been a primary motivation for me. To learn from the most successful companies, more knowledge and research is required, and I see myself in the middle of that process. The idea initially seemed simple enough; however, during my PhD studies, I have found that this task is more complicated than it appears. Over the past three years, I have embarked on a journey of learning, positive experiences, and frustration. I do not believe that there is a single recipe to follow to achieve growth; instead, it is a complex journey influenced by many factors.

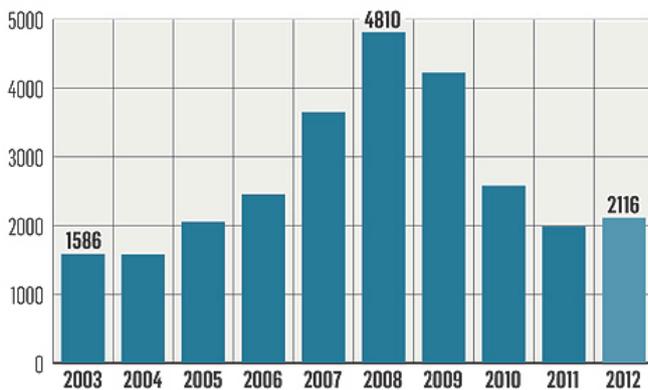
However, my motivation remains. I continue to believe that researching this topic can make a difference for future entrepreneurs and policy makers. However, I am more humble than I was four years ago. As I learn more, the problems in identifying growth drivers seem even more substantial as an increasing number of complexities arise.

### ***1.1 Importance of high-growth firms***

Small and young firms are crucial for sustaining growth in many countries. Research shows that SMEs created 85 percent of all new jobs in Europe between 2002 and 2010 (Linneman, 2012). Furthermore, 99 percent of all companies in Norway have fewer than 100 employees and are thereby categorized as SMEs, according to the Norwegian definition. SMEs, which are

increasingly recognized as the lifeblood of modern economies (McAdam et al., 2000), have a substantial impact on economies across Europe, and therefore, it is important to collect information about how these companies configure their resources to survive and grow.

High-growth companies make a substantial contribution to employment and value creation in society (Henrekson and Johansson, 2010). In Norway in 2012, there were 2,116 high-growth companies, which are called "gazelles" in Norway (see Figure 1). Although high-growth firms only comprise 4% of the total business population, their impact on value creation and employment is massive. These companies have accounted for 50% of net new employment in the private sector in Norway during the past four years.



**Figure 1: Number of Gazelles in Norway (DN.no)**

## ***1.2 A management perspective for high-growth firms***

High growth is a phenomenon that has been researched from various perspectives. However, a holistic model of company growth has yet to be developed. A research stream based on Gibrat's law that examines the effects of size and age on company growth has, for example, been developed from an economic perspective (Stam, 2010). However, recent research on high-growth companies has applied a more management perspective (Barbero et al., 2011; Casillas et

al., 2010; Hansen and Hamilton, 2011; Moreno and Casillas, 2008; Wiklund et al., 2009). This fairly new direction in growth research has left several gaps in the literature. One specific gap is related to the specific resource orchestration of high-growth firms. A large part of the research conducted in this thesis therefore involves testing previously developed growth theories in a high-growth context.

### **1.2.1 Seminal literature reviews on growth**

#### **Storey (1994)**

During recently, a number of literature reviews have been undertaken by several researchers. David Storey (1994) reviews the literature regarding small business growth. By establishing a theoretical framework, Storey (1994) identifies three spheres that lead to company growth: the entrepreneur, the firm, and firm strategy. He notes that the appropriate integration of these three spheres provides the optimal conditions for company growth.

The relationship between entrepreneur characteristics and firm growth has been the subject of previous research. By examining 18 studies, Storey (1994) identifies 15 entrepreneur characteristics that may affect firm growth. Among the 15 variables, the most studied include motivation, education, management experience, number of founders, age, prior experience, and gender. However, while it is difficult to derive conclusions from the existing studies, it appears that motivation, education, and number of founders have a positive influence on firm growth in most studies.

Storey (1994) examines the impact of firm characteristics on company growth in 14 studies and identifies six variables. Age, sector, location, and size are the most studied variables, and there

seems to be an understanding that young and small firms have better chances to achieve growth. The business sector of operation is also an important variable because certain sectors grow more rapidly than others.

Another important element is firm strategy. Actions taken by the business owner can influence company growth. Storey (1994) defines 14 variables across 12 studies. Among these 14 variables, four seem to have an impact across previous studies: external equity, market positioning, new product introduction, and management recruitment.

### **Weinzimmer, Nystrom, and Freeman (1998)**

Weinzimmer et al.'s (1998) review is highly focused on measuring growth. They identify 35 growth studies and analyze how the measurement and operationalization of growth in these studies influences their findings. Furthermore, they identify 13 determinants of organizational growth from previous research. The determinants are categorized into three dimensions:

1. **Environmental factors**, which include munificence, dynamism, concentration, and entry barriers.
2. **Strategy characteristics**, which include diversification, aggressiveness, and acquisitions.
3. **Top-management team attributes**, which include industry heterogeneity, functional heterogeneity, top-management-team size, company tenure, top-management-team age, and board composition.

The study tests different measurements of company growth and concludes that the operationalization of growth is extremely important and depends on the research question examined. Substantial inconsistencies in measurement approaches are observed.

### **Gilbert, McDougall, and Audretsch (2006)**

Gilbert et al. (2006) review 48 articles in their study and identify six key factors for company growth.

1. **Entrepreneur Characteristics.** Entrepreneur characteristics influence new venture growth. Various elements—including prior entrepreneurial start-up experience and experience in growing a company—are important because of the tacit knowledge obtained through such experiences. Further ventures founded by teams are an important variable. Hereunder, the tenure of the team and the team size are investigated.
2. **Resources.** Resources are separated into three subgroups: human resources, financial resources, and outside resources. Under outside resources, networks, counselors, and outside board members are discussed.
3. **Geographic Location.** Geographic Location is important, particularly regarding access to resources. In high-clustering locations, it is easier to gain access to financial and human capital; therefore, there is a higher probability of growth for ventures located in clusters.
4. **Strategy.** The results of strategy show mixed results. Low-cost strategies correlate negatively with growth, whereas differentiation strategies are highly correlated with growth. However, the relationship between strategy and growth is contingent upon resources and other moderating variables.

5. **Industry Context.** Regarding industry context, firms operating in growing markets have a greater chance of achieving high growth. Furthermore, the stage of the industry life cycle can create opportunities for products to be accepted in new markets.
6. **Organizational structures and systems.** To accommodate the growth experienced by firms, an internal structure is needed. In particular, formal planning with respect to the decision-making structure is important in a growth phase.

Toward the end of the paper, Gilbert et al. (2006) suggest how growth research should evolve. The paper suggests that future research investigate how and where ventures are growing instead of focusing on how much.

#### **Achtenhagen, Naldi, and Melin (2010)**

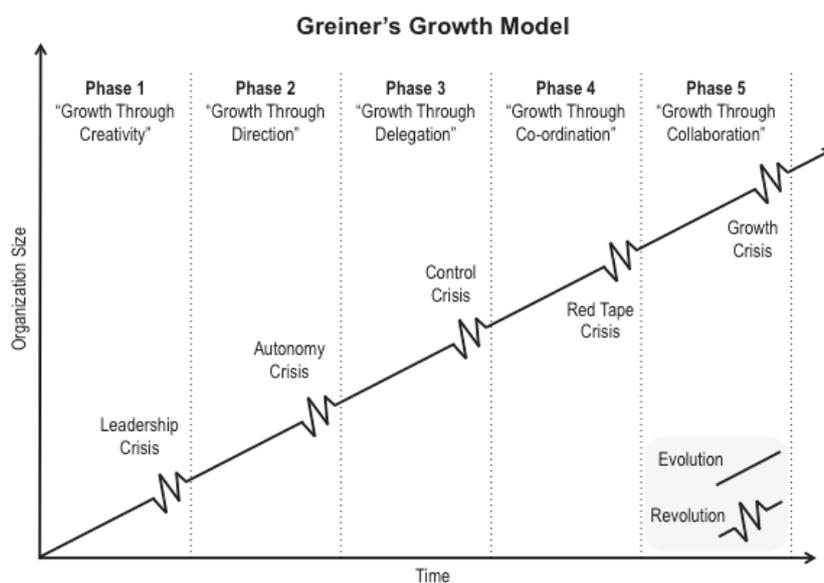
Achtenhagen et al. (2010) review 56 articles published over the 1997-2008 period. Their review is primarily concerned with the measurement and operationalization of company growth. By examining the motivation for such measurement, the design of the study, the source of data, and the type of article, the study reveals trends in the growth literature over the time period studied. The review concludes that growth research must focus more on what actually occurs in practice by conducting more qualitative studies. Furthermore, the study highlights the importance of several growth indicators to capture heterogeneity in company growth.

#### **1.2.2 Growth theories**

Previous research indicates that high-growth companies are generally small and young (Storey and Greene, 2010), are more innovative (Coad and Rao, 2008; Grundström et al., 2012), have important spillover effects (Stam and Wennberg, 2009), and are more export oriented (Parsley and Halabisky, 2008).

Firm growth has been discussed by many researchers (Davidsson and Henrekson, 2002; Penrose, 1959; Storey, 1994). One of the problems in describing growth is that companies grow in different directions. “A review of prior academic scholarship on firm growth suggests substantial heterogeneity in a number of factors that characterize this phenomenon”(Delmar et al., 2003).

The complexity of growth has been discussed since the seminal book from Edith Penrose (1959), “The theory of the growth of the firm.” Penrose states that the differences among organizations and their growth processes are so substantial that it does not make sense to compare organizations. Since 1959, several researchers have conceptualized firm growth by defining stage models for it. Churchill and Lewis as well as Greiner define different stage models (figure 3). However, stage models or growth cycles do not capture heterogeneity among firms.



**Figure 2: Stage model of growth adopted from Greiner (1972)**

Recently, stage models have been the subject of criticism because they are too simplistic to reflect the actual growth patterns of firms. Levie and Lichtenstein (2010) conclude that stage

models are similar to clear but misleading roadmaps that create an illusion of certainty about the path ahead. One of the primary criticisms of stage models is that growth in period  $t_1$  does not necessarily affect growth in period  $t_2$ . Thus, numerous studies focus on the measurement and heterogeneity of growth (Delmar, 1997).

The perception of growth in today's research is most likely back to where Penrose started—growth in organizations is too complex to compare. Traditional growth research uses a set of independent variables to predict differences in growth rates. The outcomes of these studies show a relatively low explained variance, and it is difficult to argue that growth is not completely random. The problem with conceptualizing business growth is well manifested, but the definition of the firm may also lead to conceptualization problems. Firms split up, merge, and are parts of holding companies. To adjust for such company destinies, it seems necessary to examine particular organizations. Previous research aims to identify the causes and effects of growth, but the field has been criticized for problems with conceptualizations of firm growth (Delmar, 1997; Storey, 1994). These criticisms relate to both the theoretical and the methodological shortcomings of previous research (Davidsson et al., 2006).

Over the past 20 years, several literature reviews have been conducted in the research field of growth (Achtenhagen et al., 2010; Gilbert et al., 2006; Storey, 1994; Weinzimmer et al., 1998). However, these reviews either focus on building a holistic model of company growth (Gilbert et al., 2006) or address conceptualization and measurement problems in the field (Achtenhagen et al., 2010).

Future growth studies should address modes of growth and the drivers of the choices of growth modes (Gilbert et al., 2006; McKelvie and Wiklund, 2010). To capture the research stream

derived from Penrose (1959) and recently followed by several research articles, my thesis focuses on the literature published on high-growth companies and intangible resources.

### **1.2.3 Resources**

My PhD thesis is positioned within the area of company growth analyzed from a management perspective. In 1959, Edith Penrose wrote “The theory of the growth of the firm,” which posits that there are two major categories of factors that lead to firm growth, those external to the firm and those internal. Penrose's (1959) thoughts about company growth lay the foundation for what we today call the resource-based theory. In the 1980s and 1990s, external and internal sources of competitive advantages were the topics of much discussion. Porter (1980; 1985) aims to describe the environmental conditions that lead to high levels of firm performance. This view assumes that all firms’ possess homogenous resource bases and that resource heterogeneity is short lived. Barney (1991) questions these assumptions and introduces resource heterogeneity among firms. Furthermore, he claims that certain resources are immobile across firms and therefore long lasting. My work elaborates on the perspective derived from Penrose (1959) and later followed by several researchers (Barbero et al., 2011; Casillas et al., 2010; Navarro et al., 2012; Wiklund et al., 2009). In this thesis, I aim to contribute to the internal perspective of firm growth by examining how companies exploit and configure their resources to achieve growth.

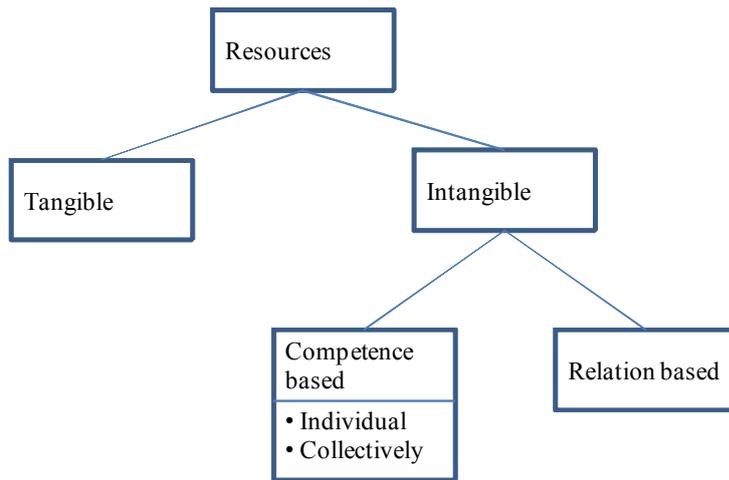
To achieve growth, a firm must possess some source of competitive advantage. In the literature, there are several ways of defining competitive advantage. In this thesis, a firm has a competitive advantage if it is able to create more economic value than the marginal competitor in its product market (Johnson et al., 2011). According to Barney (1991), a competitive advantage derives from the resources that a firm controls.

Barney (1991) defines resources as being valuable, rare, imperfectly imitable, and non-substitutable. A valuable resource might enable the firm to implement strategies that improve its efficiency and effectiveness (Daft, 1983). Furthermore, Hoopes et al. (2003) suggests that valuable resources create advantage for the firm today and that their inimitability is what determines the sustainability of a firm's competitive advantage.

Capabilities are the ability to use resources effectively. Teece et al. (1997) define dynamic capabilities as the ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. Intangible resources, such as learning or managerial resources, are frequently included as capabilities. In this thesis, everything falls under resources.

The resource-based theory of the firm is a theoretical approach that examines the link between a firm's internal characteristics and firm performance (Barney, 1991). Barney argues that a sustained competitive advantage derives from the resources and capabilities that a firm controls that are valuable, rare, imperfectly imitable, and non-substitutable assets, which include a firm's management skills, organizational processes, and routines as well as the information and knowledge that it controls (Barney et al., 2001). Barney argues further that it is not difficult to understand that valuable and rare organizational resources may be a source of competitive advantage. Firms with such resources are frequently strategic innovators (Barney, 1991). Barney (1991) argues that sustained competitive advantage cannot be purchased in the market but, instead, is gained from the resources that are already controlled by the firm. Furthermore, intangible resources are difficult to imitate and to find substitutes for. Thus, intangible resources are frequently the source of a competitive advantage and, thus, are a natural driver of growth (Hall, 1992).

There are many different ways to describe resources and capabilities. However, most researchers agree that resources can be separated into two main groups, tangible and intangible. To sketch an overview of different types of resources, I use the description of resources from Løwendahl and Wenstrøp (2003) (Figure 2).



**Figure 3: Resource framework adopted from Løwendahl and Wenstrøp (2003)**

Several scholars argue that some resources are more difficult to imitate than others and are therefore a source of sustainable competitive advantage (Barney, 1991; Dierickx and Cool, 1989). It is frequently the complexity of the resource that determines how difficult it is to imitate. Causal ambiguity, social complexity, and path dependency are three of the attributes that inimitable resources possess that make them less vulnerable to imitation.

First, causal ambiguity refers to the causal connection between actions and results. If competitors do not understand the resources on which competitive advantage is based, then the barriers to imitation would be high (Reed and DeFillippi, 1990). Tacitness, complexity, and specificity are all elements that increase causal ambiguity. Tacitness is based upon learning by doing and is accumulated by experience. When rivals are unable to codify the underlying processes in a firm,

the relationship between actions and results is obscured. Consequently, the barriers to imitation are raised. Complexity increases ambiguity; with a large number of technologies and organizational routines, no single individual has sufficient in-depth knowledge of the overall system to imitate it. Thus, a firm will protect itself from losses when employees are recruited by competitors, thus making imitation more difficult. Specificity refers to the transactions between the firm and external partners. The specificity of such transactions can raise the barriers to imitation (Reed and DeFillippi, 1990). In the extreme, the degree of causal ambiguity can be so high that the company itself does not have in-depth knowledge about the causal connection between organizational inputs and outputs.

Social complexity is another attribute that makes resources difficult to imitate. Examples of complex social resources might include firm culture, reputation, and human capital (Alvarez and Busenitz, 2001). In addition, entrepreneurial and the expertise that enables the entrepreneur to exploit opportunities are socially complex.

Path dependency refers to the history of the resource. Some resources are developed over time and are therefore difficult to imitate. Brands and reputations are examples of resources that are path dependent.

CCB (collectively competence-based) resources are notable because they have many of these attributes. Their organizational nature makes them difficult to imitate. CCB resources have a high degree of causal ambiguity, have some degree of social complexity, and are, to some degree, path dependent.

Since 1991, the resource-based theory has evolved and has become a powerful and frequently used theory to understand organizations. After 20 years of research, the resource-based theory

has reached maturity (Barney et al., 2011). Barney et al. (2011) suggests that the following five themes that can be developed further within the resource-based theory: interlinkages with other perspectives, processes of resource acquisition and development, micro-foundations of the resource-based theory, sustainability and the resource-based theory, and measurement issues.

### ***1.3 Thesis contribution***

The development of growth research has been rather slow (McKelvie and Wiklund, 2010), and there are several reasons for its slow development. According to recent growth research, there are two explanations. First, researchers focus on “how much” firms have growth—instead of how firms grow—and have thus failed to understand how firms grow in different directions (Gilbert et al., 2006; McKelvie and Wiklund, 2010); thus, the heterogeneity of growth has been neglected in the literature.

Second, the measurement of growth has been debated for some time. As discussed above, all growth indicators have strengths and weaknesses and most likely capture different forms of company growth (Achtenhagen et al., 2010; Delmar, 1997; Shepherd and Wiklund, 2009). To move growth research forward, researchers must be more careful about which growth variables they use. In particular, the choice between objective and subjective growth metrics can have a substantial impact on research results. Subjective measures include all metrics obtained by asking the company about its own growth. Objective measures involve data obtained from external sources, such as registers or budgets.

Recent studies on high-growth firms from a management perspective tend to use qualitative approaches (Achtenhagen et al., 2010; Cassia and Minola, 2012; Hansen and Hamilton, 2011).

To obtain a better understanding of how high-growth firms exploit and configure their CCB resources, this thesis contributes four quantitative papers in the field.

The overall contribution to the literature of this thesis is threefold. First, the direct effect of CCB resources on company growth is examined. Second, I examine how these companies configure and exploit their CCB resources by examining the moderation and mediation effects of firm growth. Third, this thesis uses four different growth indicators to contribute to the ongoing discussion regarding problems with the conceptualization of firm growth in the literature.

First, the effect of CCB resources has primarily been researched with respect to performance measurements. Previous research highlights the positive influence of CCB resources, such as entrepreneurial orientation (EO) and innovativeness, on performance (Calantone et al., 2002; Ireland et al., 2003; O'Regan et al., 2006; Wiklund, 1999; Wiklund and Shepherd, 2003).

Similarly, qualitative studies confirm the relationship between CCB resources and firm growth (Cassia and Minola, 2012; Hansen and Hamilton, 2011). This thesis thus contributes to the literature by revealing the direct relationship between CCB resources and company growth through papers I, II, III, and IV, which constitute *Contribution 1*.

Second, this thesis provides an in-depth understanding of how firms configure and exploit their CCB resources. Previous research highlights the interaction effects and mediation effects that are important in understanding the configuration and combination of CCB resources (Atuahene-Gima and Ko, 2001; Brockman et al., 2012; Calantone et al., 2002; Slater and Narver, 1995). By linking the configuration of CCB resources to company growth, this thesis seeks to develop knowledge about how organic- and acquisition-growth firms, microfirms, and regular firms

exploit and configure their CCB resource to achieve growth through papers I, II, and IV, which constitutes *Contribution 2*.

Third, this thesis contributes to the ongoing discussion regarding the conceptualization of firm growth in the literature (Achtenhagen et al., 2010; Delmar, 1997; Delmar et al., 2003; Storey and Greene, 2010). By applying four different growth indicators across the four papers, this thesis aims to clarify some of the complex and multidimensional aspects of company growth in papers I, II, III, and IV, which constitutes *Contribution 3*.

## **2. Theoretical background**

When conducting research, it is important to take the philosophy of science into account.

Descartes describes science as a tree of knowledge whose roots are philosophy (Hatfield, 2011).

A tree would be highly unstable without roots. Therefore, it is important to reflect a little bit about the philosophy of science.

Research is not necessarily about searching for one definite truth. I believe that there can be more than one truth, depending on the context. Thus, I classify myself as a relativist (Swoyer, 2010). With respect to growth research, there are many approaches, both methodological and theoretical, to understanding firm growth. The goal of my thesis is thus to approach growth from a resource-based perspective; my thesis does not seek to invalidate previous research that employs other perspectives but to compliment it. Thus, I believe that the best way to move science forward is to view different perspectives as complimentary to one another. In that way, we obtain the best possible information about the area of research.

The problem with relativism and accepting more than one truth, of course, is in defining what is “not true.” To define what is not true, I apply a classical Popperian falsification framework.

Popper separates science into two parts, science and pseudoscience. A scientific claim is falsifiable, which indicates that it can be proved wrong. Furthermore, scientific theories aim to explain why phenomena occur.

## ***2.1 Defining growth***

A central element with respect to examining company growth is its operationalization. Proper measurement has been the cause of extensive debate in the growth literature over the last decade, and differences in metrics may be the reason for ambiguous results across growth studies (Achtenhagen et al., 2010; Delmar et al., 2003; Shepherd and Wiklund, 2009).

The first thing to consider when measuring growth is the appropriate growth indicator. Several different indicators have been used across studies. However, employment and revenue are the two most common growth indicators (Delmar, 1997). Other growth indicators include profits, financial ratios, market share, entrepreneurial income, and various subjective measures. All of the measures have strengths and weaknesses, but the most common objective measures are sales and employment because they are frequently easily obtained through databases. However, employment may not reflect the actual goal of the entrepreneur. Furthermore, one can imagine that certain assignments are outsourced when the company grows in revenue. Such a situation would be reflected in the revenue metric. Multiple measures for company growth may therefore be required, particularly considering that Shepherd and Wiklund (2009) find that different growth indicators are only weakly correlated. Therefore, the choice of growth indicator can be crucial for the research results.

The next issue is related to how growth processes are measured. Storey and Greene (2010) present four general ways for measuring growth: 1) annualized growth, 2) absolute growth, 3) relative growth, and 4) log-transformed growth. Examining these four ways of measuring growth leads to the problem that the same firm may be a high-growth firm using absolute measures and a low-growth firm using relative measures. As a general rule, relative measures favor small firms, whereas absolute measures favor large firms.

Although growth is difficult to measure, researchers aim to define high-growth firms. Birch (1987) define three types of firms: gazelles, elephants, and mice. Gazelles refer to high-growth businesses. Elephants are large firms, and mice are small firms. However, such a categorization of firms may not reflect the actual picture of firm growth. Most likely, many firms switch between these categories.

Lastly, because growth is a process, it is not generally possible to measure growth through a cross-sectional study with historical data as an exception. Longitudinal or panel approaches are required to robustly test the growth process, which is optimal to provide reliable results.

## ***2.2 Literature review***

A new literature review has been undertaken to further understand the current picture of growth research. This review examines articles published in four leading journals over the past four years. The journals are chosen based on their background and Google ranking. The two leading entrepreneurship journals, *Entrepreneurship Theory and Practice* and *Journal of Business Venturing*, and two leading small business journals, *Journal of Small Business Management* and *Small Business Economics*, are selected, and 78 articles examining business growth that refer to

“growth” in the title are selected. All of the 78 articles are included in the review because the purpose is to examine what characterizes business growth studies in general.

To obtain an overview over growth research published during the last four years, the study focuses on the following aspects (see table 1):

1. Analysis level
2. Growth measure
3. Methodology (Quantitative, qualitative, theoretical)
4. Time frame (longitudinal, cross sectional)
5. Independent variable (resource type)
6. High-growth firms

**Table 1: Characteristics of growth studies and their frequencies**

	Frequency				Total
	ETP	JBV	JSBM	SBE	
<b>Level of analysis</b>					
Entrepreneur	4	2	2	4	12
Firm	7	12	5	27	51
Region	0	0	0	10	10
Others	1	2	0	2	5
<b>Growth measure</b>					
Sales / turnover	3	7	3	12	25
Employment	3	5	5	18	31
Growth intention	1	2	1	0	4
Others	7	2	0	11	20
<b>Methodology</b>					
Quantitative	6	13	6	39	64
Qualitative	2	2	1	0	5
Theoretical	4	1	0	4	9
<b>Time frame</b>					
Longitudinal	1	3	3	28	35
Cross sectional	6	10	4	9	29
<b>Independent Variable</b>					
Tangible	11	9	2	26	48
Intangible	1	5	4	10	20
<b>High-growth firms</b>					
Yes	0	1	2	6	9
No	12	15	5	37	69
N	12	16	7	43	78

ETP: Entrepreneurship theory and practice

JBV: Journal of business venturing

JSBM: Journal of small business management

SBE: Small business economics

The level of analysis shows that 63 of 78 (approximately 80%) of the articles focus on entrepreneurs or firms. Because the journals are concentrated in small business research, many of these firms are small firms. The 20% that do not concern small business and nascent entrepreneurs focus on regional growth and GDP growth. The numbers clearly show that the vast majority of growth research is undertaken on the firm level.

The growth measure is one of the topics that is discussed in previous literature reviews (Achtenhagen et al., 2010; Delmar, 1997; Gilbert et al., 2006) because previous research reports low explanatory power for growth research. This low explanatory power might be explained by the heterogeneity of growth and different growth indicators. In this review, sales and employment are observed to be the most common indicators of company growth, which is a trend that is confirmed by Delmar (1997). Only four studies use growth intention as a dependent variable, and many studies use both employment and sales, as recommended by Delmar (1997).

The methodology used shows that the vast majority of growth research is quantitative (64 of 78 studies). Either secondary data or questionnaire data are used in the studies that are reviewed. Achtenhagen et al. (2010) show a trend from 1997-2008 in which quantitative studies are by far the most popular type of study. This study confirms that this trend continues into 2013.

The time frame of the data is equally divided between longitudinal and cross-sectional data, and 35 of the 64 quantitative studies use longitudinal data. This picture changes when it is observed on the journal level. *Small Business Economics* includes many longitudinal studies, owing to the types of research questions and databases that are used in the journal. The articles typically use secondary data from large databases. Questionnaire data are more commonly used in the other journals, and therefore, longitudinal data are less common.

The review examines whether intangible resources are used as independent variables, and 20 of the 78 studies examine the intangible resources of companies to some degree.

Lastly, the review examines whether the studies examine high-growth firms, and we find that nine of the 78 studies concern with high-growth firms.

From the literature review, we understand that only a small number of research articles are concerned with high-growth firms. Furthermore, the review shows that intangible resources have not received much attention in the growth literature.

### **2.2.1 Resources**

In the literature review presented in table 1, 20 articles address intangible resources. To focus the research area further, I focus on CCB resources.

**Table 2: Twenty growth studies examining intangible resources**

	<b>Independent variables</b>	<b>Dependent variables</b>
1. Anderson and Eshima (2013)	EO	Formative subjective: sales, market share, employment
2. Stam and Wenneberg (2009)	R&D, NPD	Employment
3. Gielnik et al. (2012)	Opportunity focus	Formative subjective: sales, profit, transaction volume, income, employees
4. Wiklund et al. (2009)	EO	Formative subjective objective: employees, sales, market value
5. Rochina-Barrachina et al. (2010)	Process innovativeness, instrumented	Productivity growth: TFP
6. Gartner and Liao (2012)	Risk taking	Venture formation: Successful=1, non-successful=0
7. Link and Scott (2012)	R&D, SBIR, commercialization	Employment growth
8. Uhlaner et al. (2012)	Innovation	Average sales growth
9. Williams and McGuire (2010)	Innovation, instrumented	National propensity
10. Goedhuys and Sleuwaegen (2010)	Entrepreneur characteristics, innovation	Employment
11. Park et al. (2010)	Industrial network, location	Employment
12. Schoonjans et al. (2011)	Business network through PLATO	Assets, employment, added value
13. Chowdhury (2011)	Customer complexity	Revenue
14. Phillips et al. (2013)	Business network	Qualitative – one firm
15. Bradley et al. (2011)	Financial slack, ent. management	Sales
16. Edelman et al. (2010)	Entrepreneurial expectancy	Start-up motivation: self-realization, financial success, roles, innovation, recognition, independence
17. Tomczyk et al. (2013)	Entrepreneur values	Sales, employment
18. Stenholm (2011)	Growth intentions, innovation	Subjective: sales, employees
19. Pirolo and Presutti (2010)	Strong and weak ties	Objective: sales, Subjective: innovation performance
20. Mueller et al. (2012)	Entrepreneurial behavior	Qualitative: six entrepreneurs in the start-up stage and six entrepreneurs in the growth stage

From table 2, we can construct an overview of the studies investigating intangible resources. The independent variables that are used are mainly related to networks, innovation, or entrepreneurial characteristics. Four studies (11, 12, 14, 19) examine the role of networks. Nine studies (1, 2, 4, 5, 7, 8, 9, 10, 18) concern innovation. Five studies (10, 15, 16, 17, 20) examine some type of entrepreneurial management.

### 2.2.2 High-growth firms

From the literature review presented in table 1, nine studies concerning high-growth firms are identified. These studies are presented in table 3.

**Table 3: Nine growth studies examining high-growth firms**

Article	Independent variables	Dependent variable
1. Eckhardt and Shane (2011)	Tech intensity, sales and dist. Intensity, prod. intensity	# HGF in industry
2. Lopez-Garcia and Puente (2012)	Capital structure, human capital	Employment
3. Mason and Brown (2013)		Heterogeneity of HGF - theoretical
4. Vanacker and Manigart (2010)	Internal finance, debt capacity	Incremental financing decisions
5. Bhalla et al. (2009)	Ethnic / non-ethnic HGF	Four strategy schools: Classical, Evolutionary, Processualist, Systemic
6. Tomczyk et al. (2013)	Entrepreneur values	Sales, employment
7. Goedhuys and Sleuwaegen (2010)	Entrepreneur characteristics, innovation	Employment
8. Stam and Wenneberg (2009)	R&D, NPD	Employment
9. Headd and Kirchhoff (2009)	Employment over life cycle	Employment

Table 3 presents an overview of the articles on high-growth published during the past four years. The dependent variable used to measure growth is primarily employment, which is consistent with the recommendation made by Delmar (1997). A large variation in the choice of independent variables is noted.

### **2.2.3 CCB resources and high growth**

When tables 2 and 3 are combined, three studies that investigate CCB resources and high-growth companies are identified (Goedhuys and Sleuwaegen, 2010; Stam and Wennberg, 2009; Tomczyk et al., 2013).

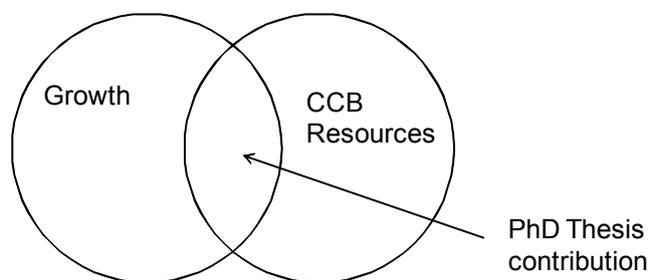
Stam and Wennberg (2009) examine how R&D affects employment growth and new product development at an early stage of the firm life cycle. The findings suggest that R&D plays an important role at the early stage the firm life cycle for both employment growth and for new product development. Tomczyk et al. (2013) finds a link between entrepreneurial value and high-growth firm performance. Goedhuys and Sleuwaegen (2010) examines entrepreneurial firms in Africa and finds that firms that engage in product innovation have higher growth rates.

## **3. Justification for the present study**

The literature review shows that growth is a topic that has been researched from different angles. In the literature review, I present articles that have been published on intangible resources and company growth. More specifically, recent studies published on growth and CCB resources are examined. Twenty studies examine intangible resources and growth, nine studies examine high growth, but only three studies examine both CCB resources and high growth. Therefore, there is a great need for more research seeking to obtain insight into the effect of CCB resources on high-growth companies.

Resource-based theory has received much attention since the emergence of the theory in the 1980s. The development of the resource-based theory has resulted in a research stream that investigates increasingly more complex resources and links them to financial performance. The emergence of CCB resources is particularly notable because a number of scholars believe that CCB resources have the potential to be the basis for sustainable competitive advantages. Thus, it is surprising that only three articles focusing on CCB resources and growth are identified in the literature review.

The life cycle perspective on company growth has identified three (Bonn and Pettigrew, 2009; Quinn and Cameron, 1983) or four stages (Lynall et al., 2003; Quinn and Cameron, 1983). The second stage in both the three and four stage models is characterized by rapid growth. In the high-growth phase, a firm typically must create and develop internal structures, increase coordination and communication, and manage new functions and organizational units (Lynall et al., 2003; Smith et al., 1985). Thus, the development of intangible resources is crucial for companies in the high-growth stage. However, more research on this area is required to understand how companies in a high-growth stage of their life cycle combine and configure their resources. This thesis is positioned in the interaction between resource-based theory and growth research (see figure 4).



**Figure 4: Research area**

### ***3.2 Research questions***

There is also a gap in the literature regarding how high-growth companies develop and configure their CCB resources to achieve growth. The objective of this thesis is to obtain a better understanding of how high-growth SMEs configure and exploit their CCB resources to achieve growth. In other words, my thesis aims to answer the following research problem:

#### **How do SMEs configure and exploit their CCB resources to achieve high growth?**

To answer this main research problem, I have identified four research questions that I attempt to answer in the four papers in the thesis.

RQ1: How do CCB resources influence the probability of becoming a high-growth SME?

RQ2: What influence do EO and customer orientation (CO) have on growth among microfirms?

RQ3: How does board composition influence the intention for further growth among high-growth firms?

RQ4: How is the effect of EO on growth affected by the choice of growth mode?

The papers in this thesis aim to answer the research questions listed above. RQ1 is answered in paper I, RQ2 is answered in paper II, RQ3 is answered in paper III, and RQ4 is answered in paper IV. Thus, this thesis elucidates the interaction between growth research and the resource-based theory.

### ***3.3 Introduction of the papers in the thesis***

The thesis includes the following four papers.

Paper I: *Intangible resources as drivers of high growth*, by Rasmussen, C.

Paper II: *Growth drivers in low-technology micro firms*, by Rasmussen, C. and Nybakk, E.

Paper III: *Corporate governance in high-growth firms: The impact of board diversity on growth intentions*, by Rasmussen, C., Ladegård, G. and Korhonen-Sande, S.

Paper IV: *Entrepreneurial orientation in acquisition and organic high-growth firms*, by Rasmussen, C.

In table 4, the theoretical perspective and the research questions of the four papers are presented.

Paper I aims to examine the role of intangible resources among high-growth firms. Paper II investigates the relationship between EO and CO and their relationship to growth among low-technology microfirms. Paper III examines the role of board composition among high-growth firms, and paper IV examines how EO is contingent upon the growth mode chosen by the firm.

**Table 4: Theoretical perspectives, context, and hypotheses**

	<b>Theoretical insight</b>	<b>Context</b>	<b>Hypotheses</b>
Paper I RQ1	Resource-based theory, learning, creative climate, innovativeness	High-growth firms	H1: The higher the firm innovativeness, the greater the probability of becoming a gazelle company. H2: The higher the level of creative climate, the greater the degree of innovativeness. H3: The higher the level of learning, the greater the degree of innovativeness. H4: The younger the organization, the greater the degree of innovativeness. H5: The younger the organization, the greater the probability of its becoming a gazelle.
Paper II RQ2	Resource-based theory, EO, CO	Low-tech microfirms	H1: A higher degree of CO is associated with higher growth in low-technology microfirms. H2: A higher degree of risk taking is associated with higher growth in low-technology microfirms. H3: A higher degree of tenacity is associated with higher growth in low-technology microfirms. H4: A higher degree of innovativeness is associated with higher growth in low-technology microfirms. H5: Growth willingness has a positive influence on company growth in low-technology microfirms. H6a/b/c: A higher degree of CO is associated with a greater effect of innovativeness / tenacity / risk taking on growth in low-technology microfirms.
Paper III RQ3	Corporate governance, board composition	High-growth firms	H1: Founder role duality is positively related to the growth intentions of high-growth firms. H2: The smaller the share of independent directors, the stronger a high-growth firm's growth intentions will be. H3: The greater the gender diversity on a board, the lower the growth intentions of a high-growth firm.
Paper IV RQ4	Resource-based theory, EO	High-growth firms	H1: A higher degree of innovativeness is associated with higher growth. H2: A higher degree of competitive aggressiveness is associated with higher growth. H3: A higher degree of risk taking is associated with higher growth. H4: Competitive aggressiveness will have a greater effect on growth among firms that have grown through acquisition. H5: Innovativeness will have a greater effect on growth among firms that have grown organically. H6: Risk taking will have a positive effect on growth among firms that have grown through acquisition and firms that have grown organically.

## **4. Data and methods**

The data used in this thesis were collected through three different surveys. The data collection, survey design, sampling, measurement, and statistical analysis are discussed in this chapter.

When measuring latent variables, as in the papers in this thesis, some general problems occur.

The general question is whether we are measuring what we want to measure. According to Popper, methodology is not enough to separate science from pseudoscience. Popper holds that “there is no unique methodology specific to science” and states further that there are is such thing as pure observation. An observation cannot be free of theory entirely. However, there is a way to distinguish science from pseudoscience. Scientific claims are falsifiable (they can be proved wrong), and scientific theory explains why phenomena occur. Falsification focuses on problems and solving such problems to aim as close as possible to the truth (Thornton, 2013).

This thesis uses previously tested measurements that are strongly related to theory; it aims to falsify the given hypotheses and is thereby consistent with Karl Poppers’ view.

### ***4.1 Measurement***

Many of the variables that were used in this thesis are unobservable. As far as possible, I follow the standard practice in the literature and use multiple-item scales to build latent variables that reflect the unobservable variables. All scales that were used were adopted from previous research to ensure their validity.

Three of the papers (I, II and IV) focus on high-growth firms (gazelles). I use an extended revenue measure to define gazelles as companies that

1. have delivered approved accounts;

2. have at least doubled their revenue during the past four years;
3. earn revenues of at least one million NOK;
4. have a positive earnings before interests and taxes;
5. have avoided negative growth; and
6. are incorporated (i.e., are registered as 'Inc.' companies).

If a company fulfills all six criteria, it is considered a gazelle; otherwise, it is considered a regular company. This definition slightly modified from David Birch's (Birch, 1987) definition of gazelles. Because of criteria number two, the gazelle companies in the sample are at least five years old.

The papers in this thesis use different growth measures. Paper I defines growth as a dummy variable that indicates whether the company is a high-growth firm by using the definition of gazelle. Paper II defines growth using three self-reported growth indicators; the companies were asked about their revenue growth, their employee growth, and their growth in market share.

Paper III defines growth based on growth intentions, which are measured through two indicators concerning how the company views its predicted growth in revenue and employees during the next four-year period. Paper IV defines growth based on growth intentions and revenue growth.

Paper I uses three latent independent variables (innovativeness, learning, and creative climate) that were conceptualized based on previous research (Calantone et al., 2002; Ekvall, 1996; Ireland et al., 2003; Lumpkin and Dess, 1996; Tidd et al., 2005). *Innovativeness*, in particular, has previously been defined in several ways (Garcia and Calantone, 2002). However, in this thesis, innovativeness is measured as the company's willingness to change through four indicators adopted from Calantone et al. (2002). The companies were asked, for example,

whether the company constantly seeks out new ways of doing things. *Learning* is measured using indicators related to learning in an innovation-management context (Tidd et al., 2005) with six indicators. For example, the companies were asked whether they take time to review their projects to improve their future performance and whether they systematically compare their products and processes with other firms (Tidd et al., 2005). Finally, the *creativity* of the firm climate is measured with eight indicators from Ekvall's creative climate questionnaire (Ekvall, 1996).

Paper II uses four latent independent variables (innovativeness, CO, risk taking, and tenacity) that were adopted from previous studies and modified to fit the microfirm context (Calantone et al., 2002; Gartner et al., 1991; Li et al., 2009; Narver and Slater, 1990). (Major organizational differences between larger organizations and microfirms required us to modify some of the measures.) *Innovativeness* is measured as in paper I. *Customer orientation*, which was originally a part of the market-orientation construct (Slater and Narver, 1995), is evaluated by asking the firms whether they seek information regarding the wants and needs of customers and whether they change product and service offerings according to such discovered wants and needs of customers. *Risk taking* is measured using three indicators, in which companies were asked about their willingness to engage in risky projects. Thus, the risk-taking variable reflects the perceived risk of the respondent. *Tenacity* is measured with items adopted from Gartner et al. (1991) and modified to fit the context of the study. It is measured using three indicators, such as "We do not give up and always finish what we start" and "Even if we repeatedly fail at something, we always try again until we succeed."

Paper III uses three independent variables regarding board composition. The three variables are all dummy variables and are fully observable.

Paper IV uses three independent latent variables (innovativeness, risk taking, and competitive aggressiveness). *Innovativeness* is measured as in paper I and II. As in paper II, *risk taking* reflects the respondent's perception of the company's approach to taking risks. The *competitive aggressiveness* scale included three items; the companies were asked about the following propositions: (1) "We try to beat and out-manuever the competition as best as we can"; (2) "We are always aware of the strengths and strategies of our competitors"; and (3) "We respond quickly to our competitors initiatives." Risk taking and competitive aggressiveness measures were adopted from Hughes and Morgan (2007).

**Table 5: List of variables in the four papers**

	<b>Variables</b>	<b># of items</b>	<b>Scale</b>
Paper I	Learning	6 items	(1-5)
	Creative climate	8 items	(1-5)
	Innovativeness	4 items	(1-5)
	Firm age	1 item	Categorical
	Growth	1 item	Dichotomous
Paper II	Customer orientation	2 items	(1-7)
	Innovativeness	3 items	(1-7)
	Risk taking	3 items	(1-7)
	Tenacity	3 items	(1-7)
	Growth	3 items	(1-7)
Paper III	Founder role duality	2 items	Dichotomous
	Independent directors	1 item	Dichotomous
	Gender diversity	1 item	Dichotomous
	Growth intentions	2 items	(1-7)
Paper IV	Innovativeness	3 items	(1-7)
	Risk taking	3 items	(1-7)
	Competitive aggressiveness	3 items	(1-7)
	Growth strategy	1 item	Categorical
	Growth intentions	2 items	(1-7)
	Growth	1 item	Continuous

## **4.2 Questionnaire development**

This thesis is based on data from three different questionnaires (table 6). Paper I is based on a mail survey that was conducted in 2010. The survey was sent to a group of high-growth firms and a control group. The questionnaire consisted of three sections: innovativeness, learning, and creative climate. Paper II is based on a survey that was conducted in 2011. The questionnaire was sent to Norwegian firewood producers and consisted of numerous sections, including sections about social networks and corporate social responsibility. The part of the survey used for paper II concerned EO and CO. Paper III and paper IV are based on a survey that was conducted in 2012. The survey was sent to a group of high-growth firms and a control group. The part of the questionnaire designed for paper III consisted of one section regarding board composition. The part of the questionnaire designed for paper IV consisted of two sections regarding EO and growth.

**Table 6: Response rate and data collection**

	<b>Response rate</b>	<b>Usable responses</b>	<b>Data collection</b>
Paper I	29%	480	E-mail survey followed with two e-mail remainders.
Paper II	31%	917	Letter explaining the importance of the survey was sent and followed by a mail survey with one mail remainder.
Paper III and VI		1501	Phone survey conducted by Norstat.

In the first survey, the gazelle companies in Norway comprised the population together with randomly drawn companies from the Norwegian database kompass.no. The survey was sent to 1106 gazelle companies and 555 other Norwegian companies that were picked at random. The second survey was aimed at Norwegian firewood producers, which consists primarily of

microfirms. The interest group “Norsk Ved” has a complete list, which includes 4200 firewood producing companies. Of these, 3000 firms were randomly selected. To maintain anonymity, a modified Dillman (2000) approach was used. The survey was conducted as a part of a project funded by NFR. In the third survey, a list of Norwegian gazelle companies from 2010, 2011, and 2012 was used. The complete list was provided by the leading Norwegian newspaper “Dagens Næringsliv.” Additionally, a randomly selected control sample was used. The survey was undertaken in collaboration with PwC Norway and conducted by Norstat and Perduco.

### ***4.3 Statistical analysis***

Paper I employs a probit regression, which is the estimator that is most frequently used when the dependent variable is dichotomous. Papers II, III, and IV use ordinary least square (OLS) regressions. All regression analyses were performed using Stata 12. In addition to regression analysis, all papers in the thesis use latent variables. Latent variables are used when the variable or concept of interest is unobservable. In this thesis, the unobservable variables include innovativeness, learning, creative climate, risk taking, CO, tenacity, and competitive aggressiveness. A number of observed items are used to construct the latent variables that cover the underlying unobservable concept. Reliability analyses are used to test the scales and the items that compose the scales. In papers I, II, and IV, confirmatory factor analysis (CFA) is used. CFA postulates a relationship between items and assumes a pre-specified pattern, which is generally drawn from theory (Bartholomew et al., 2008). In paper III, the reliability of the items is tested with Cronbach’s Alpha. After the reliability of the scale is tested, the mean is calculated and used in the OLS regression.

The causal relationship among latent constructs and observable responses has recently received considerable attention (Howell et al., 2007). The conventional measurement assumes a *reflective* model in which the observable response is believed to be a reflection (or effect) of the latent construct (Edwards and Bagozzi, 2000). The alternative measurement is the *formative* model, which views the measures as causes of constructs because the latent construct is “formed or induced by its measures” (Edwards and Bagozzi, 2000).

In the traditional reflective model, the observable variables are viewed as a function of a latent variable (Howell et al., 2007).

$$x_i = \lambda_i \eta + \varepsilon_i$$

In the formative model, the latent construct is viewed as a function of its observables (Howell et al., 2007).

$$\eta = \gamma_1 x_1 + \gamma_2 x_2 + \dots + \gamma_n x_n + \zeta$$

In the papers in this thesis, reflective models are used because the composite variable resulting from formative measures depends on the context. Thus, as the dependent variables are changed, the formative construct changes. For example, regarding socioeconomic status, in one setting, the model will only concern income, whereas in another setting, education may play a larger part—depending on the dependent variable (Howell et al., 2007).

In paper I, a mediation analysis is used. Mediation is used when a string of relationships occur and when an antecedent variable influences a mediating variable, which, in turn, influences an

outcome variable (Mackinnon et al., 2007). To estimate a mediator model, I use Baron & Kenny's (1986) four step procedure and the Sobel test (Mackinnon et al., 2007).

The data in Paper I were analyzed using MPlus 6 and Stata 11, and the data in papers II, III, and IV were analyzed using Stata 12.

## 5. Results and discussion

The results of the hypotheses tested in the four papers are presented in table 7.

**Table 7: Results, hypotheses, and significance levels**

	<b>Hypotheses</b>	<b>Sig</b>	<b>Method</b>	<b>Comments</b>
Paper I	Innovativeness → Growth	+	Probit	The younger the firm, the greater effect on innovativeness and growth.
	Creative Climate → Innovativeness	+	OLS	
	Learning → Innovativeness	+	OLS	
	Firm age → Innovativeness	-	OLS	
	Firm age → Growth	-	OLS	
Paper II	Customer orientation → Growth	+	OLS	
	Risk taking → Growth	χ	OLS	
	Tenacity → Growth	+	OLS	
	Innovativeness → Growth	+	OLS	
	Growth willingness → Growth	χ	OLS	
	CO*Innovativeness → Growth	χ	OLS	
	CO*Tenacity → Growth	χ	OLS	
	CO*Risk taking → Growth	χ	OLS	
Paper III	Founder role duality → Growth intentions	+	OLS	We observe different results among the high-growth firms, than among the comparison group. For full information, see paper III.
	Independent directors → Growth intentions	χ	OLS	
	Gender diversity → Growth intentions	-	OLS	
Paper IV	Innovativeness → Growth	+	OLS	We observe different results when revenue growth is used as the dependent variable. For full information, see paper IV.
	Competitive Aggressiveness → Growth	+	OLS	
	Risk Taking → Growth	+	OLS	
	Acquisition*CA → Growth	+	OLS	
	Organic*Innovativeness → Growth	+	OLS	

+: Positive significance at the 5% level

-: Negative significance at the 5% level

χ: Insignificant

## **5.1 *Collectively competence-based resources and growth***

### **5.1.1 Learning, creative climate, and innovativeness (RQ 1)**

Paper I aims to answer RQ 1. In paper I, it was hypothesized that learning and creative climate have a positive impact on innovativeness. The analysis supported these hypotheses. This finding is consistent with previous research and indicates the importance of learning and a creative climate for innovativeness (Calantone et al., 2002; Meriam, 2005). Furthermore, the results support the notion that innovativeness has a positive, significant effect on growth. An innovative firm is more likely to identify and exploit its competitive advantage and therefore should perform better. The qualitative study by Hansen and Hamilton (2011) also finds that a culture of innovation and flexibility leads to growth. Paper I empirically supports the positive impact of innovativeness. Notably, the effects of climate and learning are fully mediated by innovativeness.

Previous research shows that firm age is an important variable for firm growth. In paper I, firm age is hypothesized to have an effect on innovativeness and growth. The results indicate that younger companies are more likely to become high-growth firms. Additionally, the results show a significant effect of firm age on innovativeness. This finding indicates that younger companies exploit intangible resources better than older companies. Previous research has obtained ambiguous results with respect to the effects of firm age. (Calantone et al., 2002; Nybakk, 2012; Rhee et al., 2010; Yasuda, 2005).

### **5.1.2 Entrepreneurial orientation in microfirms (RQ 2)**

Paper II aims to answer RQ2. Based on the results from paper II, CO is positively related to company growth. Recently, Brockman et al. (2012) reported a positive effect of CO on

performance in small firms. Similarly O’Cass and Sok (2013) finds that marketing capability has a positive influence on SME growth. However, Zahra (2008) did not find any significant relationship between CO and performance in low-technology firms. The inconsistent results support the idea that microfirms differ from SMEs and that CO might be the factor that distinguishes small firms from large firms while providing small firms with a competitive advantage.

The effect of risk taking is insignificant. Whereas new venture creation involves some type of risk, previous research shows that risk has a greater effect on performance in rapidly changing markets. Tenacity, the personal characteristics that are necessary to follow an idea to completion, is found to be positively related to microfirm growth, which is consistent with previous research (Baum et al., 2001; Baum and Locke, 2004). The ability to follow ideas to completion is considered an important driver of microfirm growth.

Similar to papers I and IV, we observe a positive effect of innovativeness on growth. This finding is consistent with the previous literature (O’Cass and Sok, 2013). Brockman et al. (2012) find that a focus on risk taking, innovativeness, and opportunity aligned with CO has a positive effect on performance in small firms; however, they find no direct effect on performance, which is inconsistent with the previous literature (Hughes and Morgan, 2007; Wiklund, 1999; Zahra, 2008). Innovative firms are likely to perform better because of the competitive advantages that they create. An innovative microfirm is more willing to experiment with new approaches and examine problems from new angles, and the results showed that such firms benefit from this characteristic.

Growth willingness has no significant effect on actual growth, perhaps because managers may be willing to grow but do not know exactly how to achieve growth, as the task of achieving growth is complex (Baum et al., 2001; Kolvereid and Bullvag, 1996)

The results provide no significant evidence of an interaction effect. In a recent study, Li et al. (2008) examines the moderating effects of EO and finds a significant interaction between innovativeness and CO (Li et al., 2008).

### **5.1.3 Board composition (RQ 3)**

Paper III aims to answer RQ3 by investigating the effects of board composition on growth intentions in high-growth firms. Three dimensions of board composition are analyzed: gender diversity, founder role duality, and the share of independent directors on the board. The results show that gender diversity negatively affects growth intentions in high-growth firms.

Furthermore, the negative results are significant for the sample of high-growth companies and insignificant in the comparison group of companies. The finding support a contingency perspective, suggesting that there are different requirements for boards in high-growth firms than in regular firms (Miller and Del Carmen Triana, 2009; Zona et al., 2012). This conclusion is also supported by the significant results for the comparison sample, which is consistent with several recent reviews of gender diversity, suggesting that general effects are difficult to ascertain (Carter et al., 2003).

The effect of founder role duality is significant in the high-growth sample but insignificant in the comparison group. Entrepreneurial and rapidly growing companies typically face the classic question of whether the entrepreneur should remain involved in the firm or leave the company. Some scholars have noted that the role of the entrepreneur at this stage may be not as critical for further growth as conventional wisdom might suggest (Willard et al., 1992). Our findings show

that the entrepreneur does not have to be both a manager and a board member to support a firm's growth intentions and exercise his/her influence on the company. Thus, the entrepreneur remains a strong force in strategic decision making in these types of firms. Furthermore, our results are consistent with previous research that shows that the positive effect of founder role duality on firm performance is contingent on firm size and age: the relationship is stronger in smaller, younger firms than it is in larger, older firms (Jayaraman et al., 2000).

Finally, the findings show that the proportion of independent directors has a positive effect on growth intentions in the comparison group but no effect on growth intentions in high-growth firms. The absence of an effect in high-growth firms might be better explained if we examine more closely the role of independent directors on boards. Independent directors are likely to be outsiders who have little interaction with the board; thus, they do not have a strong impact on strategic decisions (Zona et al., 2012).

#### **5.1.4 Entrepreneurial orientation and the mode of growth (RQ 4)**

Paper IV aims to answer RQ4. Few empirical studies examine the moderating effect of growth modes (Gilbert et al., 2006; McKelvie and Wiklund, 2010). Paper IV contributes to the growth literature and to our understanding of EO by examining the effect of EO (more specifically, growth modes) on firm growth. Previous studies indicate that EO has a positive impact on performance and growth. The influence of EO, however, is contingent upon the particular mode of growth.

In paper IV, innovativeness is found to have a positive impact on company growth and on future growth intentions. This finding is consistent with the results from papers I and II and with previous research that examines the direct effect of innovativeness on company growth

(Calantone et al., 2002; Hughes and Morgan, 2007). However, we also observe that innovativeness more strongly affects growth intentions than revenue growth. This finding implies that companies that perceive themselves to be innovative possess higher growth intentions.

The data also show that there is a significant relationship between innovativeness and growth for high-growth firms that have grown organically. This finding indicates that innovativeness appears to be a good predictor of company growth for firms that have grown organically. Among high-growth firms that have grown through acquisition, however, the effect of innovativeness is not significant. These findings imply that current research that does not take the growth mode into consideration (Coad and Rao, 2008; Grundström et al., 2012) may underestimate the effect of innovativeness; thus, innovativeness could thus be a more important factor in organic firm growth than has previously been assumed.

The data show that there is a significant relationship between competitive aggressiveness and growth intentions. This finding implies that aggressive companies are more interested in expanding their market shares and thus ensuring growth. Few researchers empirically examine the relationship between competitive aggressiveness and growth. However, Hughes and Morgan (2007) find an insignificant relationship between competitive aggressiveness and performance. In this study, similar to Hughes and Morgan (2007), the findings show that the relationship between competitive aggressiveness and revenue growth is insignificant. Competitive aggressiveness is clearly significant for high-growth firms that have grown acquisition and high-growth firms that have grown organically.

The data show a significant relationship between risk taking and growth intentions. However, the relationship between risk taking and revenue growth is insignificant. Risk taking has been the subject of many debates, and the empirical results are ambiguous. Previous research shows that risk taking is contingent upon the environment and that firms that are operating in rapidly changing markets typically take more risks.

## ***5.2 Effect of collectively competence-based resources on growth***

The relationship between CCB resources and company performance is well documented in the previous literature; however, this thesis contributes to the literature by investigating this relationship in a high-growth context.

Firm age and company size are included in all four papers either as a control variable or as an independent variable. All papers find that young and small firms are better suited for achieving growth. This finding is also consistent with previous literature (Storey and Greene, 2010). This finding leads to a discussion about whether young firms are particularly better suited to exploit their CCB resources. Younger firms are not locked into relationships and routines and may therefore act with greater agility. Conversely, older organizations have had more time to learn from their mistakes and the market and thereby build CCB resources.

### **5.2.1 Direct effect of CCB resources (Contribution 1)**

Papers I, III, and IV examine the role of innovativeness. All these papers show that innovativeness has a significant impact on company growth, whereas papers I and IV examine high-growth firms, which is also consistent with previous literature (Calantone et al., 2002; Stam and Wennberg, 2009). Being innovative involves taking risks and costs and can potentially have a negative impact on performance. Additional innovations frequently have a time delay and are

therefore costly in the short run. Nevertheless, the relationship between innovativeness and growth is significant across the three papers, and the findings emphasize the importance of innovativeness for growth.

Furthermore, papers II and IV examine the role of EO. Two different definitions of EO are used, and therefore, the studies are not directly comparable. Risk taking is a construct that is implemented in both definitions, and the results of papers II and IV show an effect for risk taking. However, the influence of risk taking seems to be weak. There might be several explanations for this finding. First, there is selection bias related to firm growth. The companies that go into bankruptcy are not part of the sample; this could be one explanation. The companies that take too much risk simply go bankrupt and are therefore not part of the sample. The companies that manage to balance the right amount of risk taking survive and become high-growth firms. To determine the “optimal” amount of risk, further research is required. Second, the Norwegian context could influence the results. The well-developed welfare system in Norway could affect the perceived risks of entrepreneurs. They simply are not required to bet their house, health care, family, and so forth on their business, as they might have to do in other countries with less developed welfare systems.

Paper III finds the effects of board composition on growth intentions. This study provides mixed findings with respect to board composition in high-growth firms versus regular firms. First, the results support the argument of other scholars that a contingency approach can further the understanding of board diversity and outcomes and should be further pursued (Miller and Del Carmen Triana, 2009; Zona et al., 2012) More specifically, paper III indicates that young, high-

growth firms may benefit more from different governance structures than larger, more mature firms.

Second, the results indicate that different dimensions of board composition and diversity may be relevant in different strategic contexts. Consequently, more fine-grained theories may be required to build solid theories about board composition. Adams et al. (2008) even argue that the board structure of a firm is endogenous and, thus, that ... “governance structures arise endogenously because economic actors choose them in response to the governance issue they face” (Adams et al., 2008).

The papers in this thesis examine various CCB resources and their direct effect on company growth. Overall, CCB resources seem to affect company growth, and innovativeness and risk taking have the most robust relationships with company growth because these variables have been studied over a range of articles.

### **5.2.2 Configuration of CCB resources (Contribution 2)**

Paper I tests a mediation model to address how CCB resources, learning, and a creative climate affect innovativeness among high-growth firms. The results suggest that innovativeness acts fully as a mediator and thus suggests that a creative climate and learning are important antecedents to innovativeness. Firms committed to learning seek a better understanding of markets, customers, and suppliers, which suggests that innovativeness is a process of learning that might foster new ideas, products, and processes.

Paper II examines the interaction effect between the subcategories of EO and CO. The paper does not find any significant results for the interaction effect, which is inconsistent with the previous literature (Atuahene-Gima and Ko, 2001; Brockman et al., 2012; Zahra, 2008). One

reason for this finding might be related to the context of microfirms. The CCB resources in microfirms may not be fully developed; therefore, the configuration of resources may have a smaller effect. Microfirms are not simply small SMEs (Perren, 1999). The management of microfirms differs from that of SMEs and even “small firms” with up to 50 or 100 employees (Lieberman-Yaconi et al., 2010; Penrose, 1959). Microfirms differ fundamentally regarding management processes and behavioral responses that affect from both internal and external factors (Kelliher and Henderson, 2006; Kelliher and Reinl, 2009). For example, microfirms have fewer employees, interim employees, or no employees at all, and they have limited financial resources and less advanced technology and processes (Lieberman-Yaconi et al., 2010).

Paper IV examines the interaction effects between the subcategories of EO and different growth modes. The results from paper IV suggest that EO plays different roles that are dependent on the mode of growth chosen by the company. In particular, for innovativeness, the growth mode seems to play a role. The effect of innovativeness on organic growth is strongly significant and is the opposite of the effect it has on acquisition growth. Thus, if growth modes are not taken into consideration, the importance of innovativeness on organic growth may be underestimated. The results indicate that high-growth firms that have grown organically and high-growth firms that have grown through acquisition utilize and exploit their CCB resources in different ways.

The papers in this thesis examine different interactions of CCB resources. The growth mode should be taken into consideration when examining resources and company growth. Growth modes may also be one of the ways to address the heterogeneity among high-growth firms and future research should look into the different modes of growth to determine how firms grow.

### **5.2.3 Growth conceptualization and measurement (Contribution 3)**

With regard to the measurement of growth, the papers in this thesis use four different indicators. Paper I uses an objectively measured dummy variable that indicates high growth (or not) based on six criteria that are mainly related to revenue. Paper II uses subjectively measured growth through three indicators on a seven-point Likert scale. Paper III uses growth intentions subjectively measured through two items, and paper IV uses both objectively measured revenue growth and subjectively measured growth intentions. Like Actenhagen (2010), we observe that objective and subjective measurements of growth provide different estimates. Thus, choosing an appropriate growth indicator may be crucial for estimating reliable results. In this thesis, this is made most clear in paper IV. The impact of CCB resources on subjectively measured growth intentions differs from the impact on objectively measured revenue growth. In general, it is more difficult to obtain significant estimates when objective measures are used. One reason might be the underlying psychological factors. The correlation among variables becomes higher when the same person answers the questions. Therefore, the possible common method variance bias provided through questionnaire data is important to take into account. Objective measurement may provide the most valid results. However, when measuring growth intentions, for example, it is impossible to obtain objective metrics. To provide robust estimates, future research should use multiple indicators and be clear about the implications from different growth indicators.

## **6. Implications**

### ***6.1 Theoretical implications***

The main finding of this thesis is that high-growth firms are special and that they differ from other firms. Throughout the four papers, different types of CCB resources are analyzed. The

results from the four papers show differences between high-growth firms and other firms regarding board composition, innovativeness, and EO, indicating that a contingency approach should be used and that high-growth firms should be treated as a particular type of firms. The findings also indicate that more fine-grained theories are required to fully understand the dynamics of high-growth firms. It appears that high-growth companies generally exploit their CCB resources better than other firms. However, based on the results, the direct effects on CCB resources seem to have the greatest impact on company growth. Innovativeness has a direct effect on growth throughout three of the papers. To advance the literature and obtain more information about how high-growth firms innovate, future research should examine innovativeness in depth. Innovativeness includes different features, such as process, product, and organization, which should be examined to elucidate how high-growth firms exploit their CCB resource through innovativeness.

Paper III applies a slightly different perspective on CCB resources than the other three papers by investigating board composition in high-growth firms. Overall, there are two main implications from paper III. First, the results support the argument of other scholars that a contingency approach can help us study board diversity and outcomes and should thus be pursued further (Miller and Del Carmen Triana, 2009; Zona et al., 2012). Young, high-growth firms may benefit more from having different governance structures from larger, more mature firms. Second, the results indicate that different dimensions of board composition and diversity may be relevant in different strategic contexts. For example, board diversity positively affects innovation by providing a variety of perspectives and knowledge bases, whereas our findings indicate that a unified board with interests that are well aligned with management/entrepreneur best supports growth intentions. These findings may suggest that different strategic contexts generate different

governance issues. Consequently, more fine-grained theories may be required to build solid theories about board composition. Adams et al. (2008) even argue that the board structure of a firm is endogenous and, therefore, that ... “governance structures arise endogenously because economic actors choose them in response to the governance issue they face” (Adams *et al.*, 2008).

The results in this thesis do not show a significant interaction between different CCB resources. This finding indicates that high-growth firms are not necessarily better at configuring their CCB resources. One explanation for this finding might be the age of the high-growth companies. Their young age may lead to the conclusion that they do not have the experience to fully manage the configuration of their CCB resources. To fully understand the resource orchestration of high-growth firms, more research is required.

The findings in this thesis show that the effect of EO on growth substantial differs depending on the mode of growth. Growth modes have previously been suggested as an important topic of research for some time (Gilbert et al., 2006; McKelvie and Wiklund, 2010). The importance of taking growth modes into account is clear and might help remove some of the heterogeneity that characterizes growth research. Thus, cleaner estimates might be achieved. Paper IV finds that the effect of innovativeness on organic growth is strongly significant and is the opposite of its effect on acquisition growth. This finding implies that growth modes may lead to an underestimation of the importance of innovativeness for organic growth. Thus, future research examining growth should take growth mode into consideration because different growth modes represent different resource configurations.

By applying four different growth indicators, this thesis contributes to the ongoing discussion regarding the problems conceptualizations of firm growth in the growth literature. The effect of innovativeness appears to be robust across different indicators. However, it also seems easier to obtain significant results using subjective measurements. Future research should take this into consideration; the results thus support the view of Delmar (2003) and indicate that future researchers should take care in choosing the correct growth indicators.

Papers II and IV use EO as an independent variable. The findings suggest that the conceptual domains of EO cannot necessarily be merged into one meaningful construct. When separate conceptual domains are merged, information about the actual entrepreneurial processes is lost. As a result, the elements of EO are understood not to have a homogenous influence on the different growth indicators that are used. I believe that using EO as a multidimensional construct while using a configurational approach might help to advance EO research.

## ***6.2 Managerial and policy implications***

The papers in this thesis examine the role of CCB resources and their effect on company growth. High-growth firms are important for job and value creation in the economy and have innovative qualities. Therefore, information on high-growth firms is important for CEOs and for policy makers.

The results indicate that innovativeness is a key element in high growth. Innovativeness—the ability to do things in new ways and to constantly challenge the organization to think in new ways that help it launch new products and services—is important. Thus, policy makers should increase their focus on entrepreneurship and innovation. In addition, this study addresses whether innovative capacities can be learned. A large body of literature suggests that they can be,

indicating that government spending should focus on entrepreneurship and innovation training and education. Furthermore, the results from papers I, II, and IV indicate that innovativeness is an important driver of firm growth. Managers should increasingly seek new and more efficient ways of producing goods and improving their business models. Paper IV indicates that the effect of innovativeness depends on the growth mode of the firm and that the effect of innovativeness is stronger in firms that grow through internal development. To optimize the effects of innovativeness, CEOs should be clear about the strategic goals of the firm regarding growth.

The results from paper III regarding board composition suggests that high-growth firms have different governance structures from ordinary firms. This finding implies that the policy makers should be careful when enacting regulations related to board composition across all types of companies because the effect of board diversity on performance may depend on the firm's life cycle and its strategic goals.

The results from paper II indicate that CO is an important driver for growth in low-technology microfirms. According to previous research, CO might be one of the factors that separates microfirms from SMEs (Brockman et al., 2012). This finding supports the view that managers should have an increased focus on customer needs as they pertain to the delivery of goods.

## **7. Limitations and future research**

The present thesis clearly defines innovativeness as an important variable in describing and explaining high-growth companies. However, the primary limitation of this thesis is likely the lack of consideration of companies that have gone bankrupt. Firms that are “too” innovative may not succeed and do not compose part of the datasets that are analyzed. Thus, selection bias may arise regarding the studied companies. However, selection bias is an issue in most articles that

examine firms and is difficult to address because of the difficulties in identifying firms that have gone bankrupt. Furthermore, the results show no effects of risk taking across the studies. Again, identical problems occur. Companies that take too many risks may have gone bankrupt and therefore may not compose part of the dataset. To provide more robust results, this possible attrition bias should be addressed.

Many studies on firm growth suffer from endogeneity problems. However, instruments are required to control for possible endogenous variables. Future research should develop instruments that obtain more robust estimates of the drivers of growth.

Growth is longitudinal by nature and is measured longitudinally in this thesis. However, the independent variables are only measured at one point in time and are thus cross-sectional. To draw conclusions about how CCB resources develop over time and are connected to the growth path of high-growth firms, more research is required. Innovativeness is frequently considered to have a time lag, and therefore, studies that include longer time periods would be better suited to capture the effect of innovativeness.

The data obtained through the surveys are based on a single respondent in each firm. To obtain a more accurate picture of firms' resources and growth, multiple respondents in each firm could be used.

High-growth firms are primarily characterized by substantial heterogeneity. Thus, different types of sectors and businesses are included in the sample. However, studies in different sectors and settings are lacking, and such studies might help elucidate the dynamics of high-growth firms. There might be differences that depend on the technology or industry level. To take such differences into account, more research is required.

Lastly, the field of growth research might be stuck in a paradigm that growth is good. However, entrepreneurs in young high-growth firms may not focus on revenue growth; instead, they may be focused on cash flow or simply on surviving. To understand top CEO decision making, more in-depth knowledge is required.

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# Paper I



## **Intangible resources as drivers of high growth**

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### **Abstract**

This paper examines the effects of innovativeness, creative climate and learning on high growth. We study how fast-growing SMEs, known as gazelles, differ from other SMEs. A survey of 345 Norwegian gazelles and 135 non-gazelles supports the idea that innovativeness is an important factor in whether a company becomes a gazelle. Creative climate, learning and innovativeness were conceptualized and analyzed as first-order constructs using confirmatory factor analysis, OLS and Probit regression. Learning and creative climate were found to have a positive impact on growth through innovativeness. Based on the data, it seems that younger companies are more likely to be innovative and grow quickly.

**Keywords:** Innovativeness, gazelles, high growth, intangible resources

## **1. Introduction**

From both economic and political perspectives, high-growth innovative companies are beneficial, due to their large contribution to job and value creation (Henrekson and Johansson, 2010). Thus, it is important for researchers to identify the variables that contribute to high growth. In recent decades, there has been an increased focus on intangible resources as sources of competitive advantages. Several studies have examined the relationship between intangible resources, such as creative culture, learning, and innovativeness, and firm performance (Akman and Yilmaz, 2008; Forsman, 2011; Nybakk, 2012; Nybakk and Jenssen, 2012). However, surprisingly few have examined the relationship between these intangible resources and high growth. This paper contributes to the literature on high growth and the resource-based view by investigating how intangible resources such as learning and creative climate affect growth in small and medium-sized enterprises (SME) through innovativeness. Toward that end, the paper explores how the fastest growing SMEs, the gazelles, differ from other SMEs.

Several definitions of innovativeness have been used in the literature (Garcia and Calantone, 2002). We follow Calantone et al. 2002 and define this concept as a firm's willingness to change (Calantone et al., 2002). Learning is defined as the ability to acquire new knowledge from markets, alliances and customers (Tidd et al., 2005). Creative climate is defined as the patterns of behavior that characterize life in an organization (Isaksen et al., 2001).

This study uses a mixed measure of revenue growth. To effectively capture growth, a study must use an appropriate growth indicator. Measuring growth, however, has proved to be challenging. The most common growth measures are employment and sales (Delmar, 1997), but there is a weak correlation between different growth measures (Shepherd and Wiklund, 2009). One positive predictor of growth may be a negative predictor of another type of growth. Therefore, many firms that are characterized as growth firms would not be classified in that manner if different metrics were used (McKelvie and Wiklund, 2010). By using a mixed measure of revenue growth, this study avoids some of the shortcomings of the growth literature.

Previous growth research suggests models for evaluating the stages of growth that firms experience over time (Greiner, 1997; Lewis and Churchill, 1983). However, the assumption that growth is a linear or sequential process is not consistent with the actual growth patterns of firms

(Davidsson et al., 2006). Recent growth studies suggest that growth is a highly complex phenomenon because companies grow in different ways. (Davidsson and Henrekson, 2002; Heshmati, 2001; Penrose, 1959; Storey, 1994). Further a number of studies examine growth with respect to R&D and innovation (Coad and Rao, 2008; Hölzl, 2009; Stam and Wennberg, 2009). However, recent studies of high-growth companies tend to use a qualitative approach (Achtenhagen et al., 2010; Cassia and Minola, 2012; Hansen and Hamilton, 2011). For instance, Cassia and Minola (2012) examine the effect of entrepreneurial orientation on “hyper growth” and conclude that extraordinary access to knowledge-based resources could explain high growth.

To achieve high growth, a company must possess resources that are valuable, rare, imperfectly imitable, and intangible, including management skills, organizational processes, and controlled information and knowledge (Barney et al., 2001). Wiklund and Shepherd (2003) examine constructs that measure the knowledge-based resources of a company. Knowledge is recognized as an important bundle of intangible assets that can be a source of competitive advantage (Wiklund and Shepherd, 2003). According to the resource-based theory, knowledge-based resources can be valuable and rare and can yield sustainable competitive advantage and, therefore, high growth. Learning is a key component of valuable knowledge-based resources. Learning from markets, alliances and past mistakes generates the knowledge that will permit a firm to take strategic and tactical action. Such knowledge makes the firm more capable of exploiting new opportunities. The effects of learning on firm performance and innovativeness have been investigated across a range of industries, and studies show an empirical connection between them (Calantone et al., 2002; Jung et al., 2003; McAdam et al., 2008; Tidd et al., 2005). Furthermore, creative climate is considered to be an important intangible resource. Previous research argues that a creative climate has a positive impact on innovativeness and directly affects company performance (Amabile, 1998). A climate that stimulates employee creativity leads to motivation within the organization. Fostering a creative climate in companies has frequently been mentioned as important for generating innovation (Brooke Dobni, 2008; Pervaiz, 1998).

Previous research highlights the relationship between innovativeness and performance (Damanpour and Schneider, 2008; Hult et al., 2004; O'Regan et al., 2006). In the field of

strategic entrepreneurship, a mix of opportunity- and advantage-seeking behavior leads to superior performance. Recently, however, the focus has shifted to include innovativeness as a mediating factor (Akgün et al., 2007; Rhee et al., 2010). Learning and creative climate are important antecedents of firm innovativeness (Amabile, 1998; Calantone et al., 2002; Damanpour, 1991). Firms with a high focus on learning tend to make better use of available information and are therefore more likely to be innovative. A creative climate stimulates employee creativity and, consequently, firm innovativeness.

Achtenhagen et al. (2010) present a review of the literature on growth (Achtenhagen et al., 2010). The study suggests that there is significant heterogeneity among different types of growth and notes that firm age plays an important role in firm growth. However, the authors find no significant impact of firm age on growth. Similarly, although Cassia and Minola (2012) examine three cases, two involving young companies and one involving an older company (Cassia and Minola, 2012), their results regarding firm age are ambiguous. Thus, further research will need to continue to investigate the effects of firm age on high-growth companies. The influence of age on high growth still remains unclear. Although the aim of this study is to examine how the attitudes of SMEs encourage learning, creative climate and innovativeness and therefore lead to high growth, the influence of firm age on high growth is also examined.

By examining high-growth firms, we obtain an in-depth understanding of how they exploit their intangible resources. The previous literature on high-growth firms tends to use qualitative methods (Cassia and Minola, 2012; Hansen and Hamilton, 2011; Hashi and Krasniqi, 2011). As indicated by Cassia and Minola (2012) and Achtenhagen (2010), quantitative studies of high growth are needed. By quantitatively examining high-growth firms, we seek to close the knowledge gap and develop an understanding of how such firms generally exploit their intangible resources.

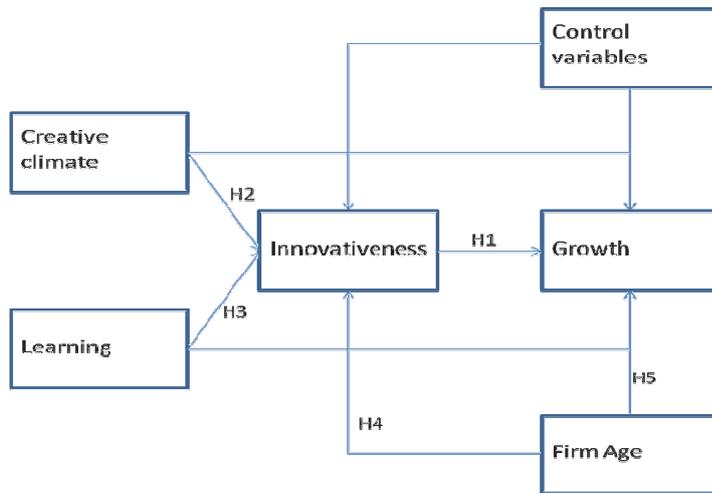
The effect of creative climate, learning and innovativeness has been heavily studied, and these factors have been linked to business performance. However, the study of high-growth companies has been neglected. Thus, this study contributes to the field by closing the gap between our knowledge of well-performing and high-growth firms. No research has as far as I know to date has examined the link between high growth and intangible resources.

The size of the organization has a substantial influence on the particular manner in which innovation is managed: “In relation to innovation, a smaller organization possesses a range of advantages – such as agility, rapid decision-making – but equally, limitations such as resource constraints.” (Tidd et al., 2005). SMEs, which are increasingly recognized as the lifeblood of modern economies (McAdam et al., 2000), are examined in this study because of their total contribution to job and value creation.

In summary, this study investigates to what degree innovativeness, creative climate and learning affect the probability of a company’s becoming a gazelle. Innovativeness is hypothesized to act as a mediating variable. The model includes latent variables and confirmatory factor analysis (measurement model). Given the good model fit, composite variables were calculated using the mean. Additionally, a set of control variables is included in the analysis.

## **2. Theoretical background and hypotheses**

Innovativeness refers to the development of new products or processes that increase strategic advantage and lead to the creation of competitive advantage. To become a high-growth company, a firm must constantly seek and better ways to manage business processes and develop new products or services. Learning and creative climate are two intangible resources that are key components of any innovative firm (Amabile, 1998; Nybakk, 2012; Rhee et al., 2010). A creative climate motivates employees and has a positive impact on innovativeness (Amabile, 1997). Learning generates the knowledge that makes it possible for firms to exploit new opportunities.



**Figure 1: Conceptual model**

## 2.1 Growth

There seems to be a common understanding of the complexity of growth processes (Achtenhagen et al., 2010; Davidsson and Henrekson, 2002; Heshmati, 2001; Penrose, 1959; Storey, 1994). Storey (1994) has taken previous growth studies into consideration in developing a model of why small firms grow. The model contains three spheres: the firm, strategy and the entrepreneur. According to Storey’s study, rapid growth is the result of the intersection of all three spheres. However, the explanatory variables used in growth studies from the 1990s are directly related to the entrepreneur. From previous literature on high growth companies, researchers seem to agree that high growth firms are small and young (Grundström et al., 2012; Parker et al., 2010; Storey and Greene, 2010). Further Grundström et al. (2012) finds that high growth firms tend to be more innovative in terms of launching new products (Grundström et al., 2012). Hansen and Hamilton (2011) identify factors that distinguish growers from non-growers (Hansen and Hamilton, 2011). In the qualitative study by Hansen and Hamilton (2011), a culture of innovation and flexibility are the main factors that lead to growth. Furthermore, Cassia and Minola (2012) suggest that entrepreneurial orientation (and, therefore, innovativeness) is an explanatory variable for high growth. Several studies have examined high growth companies

## 2.2 Innovation and innovativeness

Innovation has been the subject of massive research, debate and discussion. Fagerberg et al. (2006) define innovation as the first attempt to offer a new product or process in practice (Fagerberg et al., 2006). Furthermore, Gjelsvik (2007) portrays innovation as a necessity for any firm that wants to survive in a competitive economy. Other researchers have defined innovation as "the successful implementation of creative ideas within an organization" (Amabile et al., 1996). This concept implies that the firm does not need to create new products by itself but instead needs to implement something new in its own context. Hurt et al. define innovation as an organization's willingness to change (Hurt et al., 1977). Although researchers differ in their definitions of innovation, it is clear that innovation involves something new.

The connection between firm innovativeness and firm performance has been documented in several papers (Calantone et al., 2002; Nybakk, 2012; O'Regan et al., 2006). The postulated positive influence of innovativeness is the cornerstone of this study. Ireland et al. (2003) demonstrate a clear theoretical link between entrepreneurial activities and superior performance. Strategic entrepreneurship involves simultaneous opportunity- and advantage-seeking behaviors and results in superior firm performance (Ireland et al., 2003). The study by O'Regan et al. 2006 claims that the ability to innovate is a key factor in sustaining the competitive advantage of any firm. (O'Regan et al., 2006). Similarly, Cassia and Minola (2012) examine the connection between innovativeness and high-growth companies (Cassia and Minola, 2012). In addition, Hansen and Hamilton (2011) define innovativeness as an important driver of high growth (Hansen and Hamilton, 2011). These findings, taken together, yield the following hypothesis:

*Hypothesis 1: The higher the firm innovativeness, the greater the probability of becoming a gazelle company*

### **2.3 Creative climate**

Several studies in the literature highlight the importance of generating a creative climate to spark innovation (Amabile, 1998; Nybakk et al., 2011; Nybakk and Jenssen, 2012). According to Jung et al. 2003, "one way of increasing firm creativity is by creating and sustaining an organizational climate and culture that nurture creative efforts and facilitate diffusion of learning" (Jung et al., 2003). However, as Amabile argues, creativity is unintentionally undermined every day in work

environments that were established to maximize business imperatives such as coordination, productivity and control (Amabile, 1998). In this study, a firm's climate is life in the organization as well as employee behaviors, attitudes and feelings (Ekvall, 1996). A creative climate influences innovativeness in an organization by motivating employees. A creative climate fosters more motivation among employees and, thus, a greater degree of innovativeness in the organization.

According to Barney, an organizational culture can generate competitive advantage in and of itself because of the difficulty of replicating organizational core values. Ekvall (1996) and Brooke Dobni (2008) highlight the importance of a creative climate and its impacts on innovativeness (Brooke Dobni, 2008; Ekvall, 1996). The creativity and motivation generated by a creative climate are necessary for an innovative organization to exploit resources and have the ability to constantly develop new products and processes. As Pervaiz (1998) notes, the "possession of positive cultural characteristics provides the organization with necessary ingredients to innovate" (Pervaiz, 1998).

*Hypothesis 2: The higher the level of creative climate, the greater the degree of innovativeness.*

## **2.4 Learning**

To develop managerial and technological resources, firms should implement learning processes (Tidd et al., 2005). Learning is about obtaining necessary information on markets, alliances and internal mistakes, which generates the firm's ability to rethink its own position. Garvin et al. (2008) highlight concrete learning processes and practices. Systematically collecting information about competitors, markets and customers is essential to creating a learning organization (Garvin et al., 2008). Slater and Narver (1995) argue that the value of information is greater in learning organizations (Slater and Narver, 1995). A learning organization will be able to act on the basis of the information obtained and will thereby improve its ability to apply knowledge and information (Hurley and Hult, 1998; Sinkula, 1994).

The ability to obtain and use new information generates a connection between learning and innovativeness. Previous research has stated that learning affects firm innovativeness (Calantone et al., 2002; Nybakk, 2012). An organization that is committed to learning is unlikely to miss

opportunities in emerging markets because of the systematic learning processes that it has implemented. A well-established learning organization will use state-of-the-art technology and avoid uncertainty in the face of technology turbulence. Finally, a learning organization is more likely to achieve a high degree of innovativeness. The ability to exploit knowledge-based resources plays an essential role in a firm's ability to innovate (Wiklund and Shepherd, 2003).

*Hypothesis 3: The higher the level of learning, the greater the degree of innovativeness.*

## **2.5 Firm age**

The characteristics of young firms could influence their level of innovativeness. Luo et al. (2005) argue that younger firms are more likely to break with routines and become innovative due to their limited bureaucracy and inertia (Luo et al., 2005). Anderson and Eshima (2011) state that younger firms are more likely to become radical innovators because of their lack of well-defined routines and use of more organic structures (Anderson and Eshima, 2011). However, it likely takes time to build the structures and routines that generate innovativeness. Huergo and Jaumandreu (2004) find that the probability of innovating varies widely according to the activities of the firm. Furthermore, they find that firms that are just entering the market tend to have the highest probability of innovating (Huergo and Jaumandreu, 2004).

Previous research has obtained ambiguous results regarding the influence of firm age on performance. Evans (1987) finds that the probability that a firm will fail decreases with firm age (Evans, 1987). Calantone et al. (2002) find that firm age has a positive, significant influence on performance, but Nybakk (2011) draws the opposite conclusion. Achtenhagen et al. (2010) do not find any relationship between firm age and growth (Achtenhagen et al., 2010). However, they suggest that age could have an influence on how firms grow. Furthermore, Yasuda (2005) finds a negative relationship between firm age and growth in manufacturing firms, suggesting that younger firms tend to grow more rapidly (Yasuda, 2005). Previous research often uses firm age as a control variable; however, firm age may itself be crucial to understanding firm innovativeness and growth. Because the companies examined in this study have achieved high growth, it is believed that their competitive advantage relies on radical innovation, and we make the following hypotheses:

*Hypothesis 4: The younger the organization, the greater the degree of innovativeness.*

*Hypothesis 5: The younger the organization, the greater the probability of its becoming a gazelle.*

## **2.6 Control variables**

The control variables employed in this study are location, patents, bonus salary and number of employees. Firm location was included because of the regional differences in Norway; It is measured as a dummy variable indicating whether the company is located in or around the capital of Norway. Patents and bonuses awarded were included as control variables. Patents and bonuses vary for specific sectors and could have an influence on company growth and innovativeness. Patents and bonuses awarded are both measured as dummy variables. The number of employees has previously been linked to firm growth (Yasuda, 2005). The number of employees is measured as a categorical variable with five levels. To incorporate any non-linear effects from the number of employees, we use a series of four dummy variables to measure the effect the number of employees in the model.

## **3. Methods**

### **3.1 Measurement, Sampling and data collection**

The questionnaire was developed based on previous research. The questionnaire consists of three different categories of questions regarding innovativeness, learning and organizational culture. Descriptive information about sectors and firm age was also included. The questions about innovativeness have been used in previous studies, although small adjustments were made to make the questions fit this study. The questions are answered on a 5-point Likert scale.

The company growth measure is a dummy variable that indicates whether the company is a gazelle. The regression coefficient is estimated using probit regression, and the constructs were conceptualized as in previous research (Calantone et al., 2002; Ekvall, 1996; Ireland et al., 2003; Lumpkin and Dess, 1996; Tidd et al., 2005). Learning is measured using indicators related to learning in an innovation management context (Tidd et al., 2005). Finally, the creativity of the firm climate is measured using indicators from Ekvall's creative climate questionnaire (Ekvall, 1996). Company age is measured as a categorical variable with four levels. To incorporate any

non-linear effects from age, we use a series of three dummy variables to measure the effect of age in the model.

To capture company growth, an extended revenue measure is used. In this study, gazelles are defined as companies that

1. Have delivered approved accounts
2. Have at least doubled their revenue during the past four years
3. Earn revenues of at least one million NOK
4. Have a positive EBIT
5. Have avoided negative growth
6. Are incorporated (i.e., are registered as 'inc.' companies)

If a company fulfills all six criteria, it is considered a gazelle; otherwise, it is considered a regular company. Due to criteria number two the gazelle companies in the sample are minimum five years old. To avoid any differences between the gazelle population and the control group, the control sample is truncated, meaning that no control companies are less than five years old. This also implies that the results cannot be generalized to a population of companies less than five years old. Gazelle growth is defined by David Birch (Birch, 1987). However, the definition has been slightly modified in this study. One of the problems with describing growth is that companies grow in different directions. "A review of prior academic scholarship on firm growth suggests substantial heterogeneity in a number of factors that characterize this phenomenon" (Delmar et al., 2003). Thus, to empirically examine growth, an appropriate indicator must be used.

### **3.2 Data collection**

A complete list of gazelle companies was taken from the leading Norwegian business newspaper *Dagens Næringsliv*, and small and medium-sized enterprises were randomly chosen to generate

the sample. In total, 4550 high growth firms were identified, of which 1792 firms are SMEs. In this study, whether a firm is an SME depends on the firm's number of employees. We follow the definition of SMEs made by the Norwegian government and define companies with less than 100 employees as SMEs<sup>1</sup>. We note that this definition deviates from the definition of SMEs in EU, which is companies with less than 250 employees. By visiting the firms' websites and identifying key employees, we were able to locate 1106 employee e-mail addresses. Thus, we obtained addresses for 61.7 % of the firms within the sample.

The control group was chosen from the *kompass.no* database. By locating incorporated firms that were characterized as SMEs, we identified a control sample of 14000 firms. From this sample, 555 randomly chosen SMEs were selected as the control group.

The questionnaire was developed using the Questback software, included an introduction letter, and could be filled out in either English or Norwegian. The respondents in this survey are organizations, and, where possible, the survey was sent to key employees. Admittedly, however, our lack of control over who actually answered the questionnaire detracts from the reliability of the results.

The research sample consists of 480 valid responses, for a total response rate of 28,9 %. In total, 345 high-growth firms answered the questionnaire, generating a response rate of 31.2 %, whereas 135 companies from the control group responded, generating a response rate of 24.3 %. High growth companies usually equals 2-5 percent of the total population of companies in a country (Sims and O'Regan, 2006). Hence, the proportion of high growth companies in our total sample is not generalizable to the population of companies. However, the subsamples represent the subpopulations and can be compared. After deleting all cases that did not meet the above criteria or that included too many missing values, we obtained a final sample that was composed of 370 usable observations.

### **3.3 Data analysis**

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<sup>1</sup> <http://www.regjeringen.no/nb/dep/fin/dok/nouer/1995/nou-1995-16/5/2/1.html?id=336716>

Basic statistical analysis was conducted using Stata 12. To correct for non-normality in residuals, robust estimators were used. The results regarding innovativeness show that gazelle SMEs score higher than companies from the control group on every survey indicator. In general, the high-growth SMEs score higher on innovativeness, learning and creative climate. This observation lends support to the notion that there is no single indicator that determines innovativeness and drives growth. This finding is consistent with the theoretical understanding of growth.

### 3.3.1 Measurement model

The measurement model includes three first-order constructs (innovativeness, learning and creative climate). Each of the constructs is measured using four to eight items and can be observed in table 1. After testing, nine of the items were deleted because of poor standard loadings.

**Table 1: Measurement model**

<b>Constructs and indicators</b>	<b>Standardized loadings</b>	<b>Based on work by</b>
<b>Innovativeness (CR=0.78, AVE=0.48):</b>		
1. Our company constantly seeks out new ways of doing things	0.624	Calantone et al. 2002
2. Our company is often the first to market with new services and products	0.578	Calantone et al. 2002
3. The employees have a clear idea of how innovation can help us compete	0.824	Tidd et al. 2005
4. Our innovation strategy is clearly communicated so employees know the targets for improvement	0.820	Tidd et al. 2005
<b>Learning (CR=0,8, AVE=0,41):</b>		
1. We are trying to imagine future threats and opportunities in a structured way (using forecasting tools and techniques)	0.618	Tidd et al. 2005
2. There is a strong commitment to employee training and development	0.641	Tidd et al. 2005
3. We take time to review our projects to improve our future performance	0.675	Tidd et al. 2005
4. We systematically compare our products and processes with other firms	0.580	Tidd et al. 2005
5. We meet and share experiences with other firms to help us learn	0.524	Tidd et al. 2005
6. We are good at capturing what we have learned so that others in the organization can make use of it	0.776	Tidd et al. 2005
<b>Creative climate (CR=0,89, AVE=0,5):</b>		
1. Employees invest great amount of energy in their jobs	0.658	Ekvall CCQ
2. Employees take initiative	0.741	Ekvall CCQ
3. It is possible for employees to make decisions	0.630	Ekvall CCQ
4. Ideas are received in an attentive and supportive way	0.769	Ekvall CCQ
5. The organization has a tolerance for uncertainty	0.657	Ekvall CCQ
6. Decisions based on new opportunities are prompt	0.691	Ekvall CCQ
7. Everyone feels comfortable submitting ideas for discussion	0.684	Ekvall CCQ
8. The environment is dynamic	0.786	Ekvall CCQ

The measurement model with the loading coefficients and the error variance was tested. The t-values of the items varied from 10 to 35. Thus,  $p < 0,01$  for all items, and the items exhibited convergent validity (Anderson and Gerbing, 1988). The average variance extracted (AVE) and composite reliability (CR) were calculated for the factors, and the results are shown in table 1. Two of the constructs were below the recommended level of 0.5 (Fornell and Larcker, 1981). Discriminant validity was tested by comparing the square root of the correlation with the other latent constructs to its AVE, as recommended by Fornell and Larcker (Fornell and Larcker, 1981). The result of this test provided evidence of discriminant validity.

The measurement model exhibited an acceptable level of fit. The root mean square error of approximation (RMSEA) equaled 0.056 [0.047; 0.065] with  $p = 0.144$ . Values below 0.06 indicated good model fit (Hu and Bentler, 1999). The comparative fit index (CFI) equaled 0.95 and was above the recommended cutoff of 0,9 (Hooper et al., 2008). The Tucker-Lewis index (TLI) equaled 0.94, and values between 0.9 and 0.95 were viewed as acceptable (Kendler et al., 2002). Given the good model fit, composite variables were calculated using the means.

#### **4. Results**

The regression results are summarized in table 2. Innovativeness has a positive impact on growth, which supports hypothesis 1. The data show that there is a positive significant relationship between learning and innovativeness and between creative climate and innovativeness. This finding supports hypotheses 2 and 4. Firm age was hypothesized to have a negative effect on innovativeness and firm growth, meaning that the younger the organization is, the higher the degree of innovativeness and growth should be. The results support hypotheses 4 and 5. Another interesting finding is the positive significant effect of providing employee bonuses. The results show that there is an 8,5 % greater chance that a firm will become a gazelle if the firm offers bonuses.

**Table 2: Regression results**

<b>Explanatory variables:</b>	Innovativeness		Growth	
	Coefficients (std. Err.)	Hypothesis supported	Coefficients (std. Err.)	Hypothesis supported
Innovativeness			<b>.272</b> <b>(.127)</b>	H1 supported
Creative climate	<b>.432</b> <b>(.075)</b>	H2 supported	.189 (.171)	
Learning	<b>.390</b> <b>(.068)</b>	H3 supported	.149 (.156)	
Foundation year:				
Before 1975	Base group		Base group	
1976-1985	.111 (.139)		-.163 (.256)	
1986-1995	.137 (.109)		<b>.515</b> <b>(.223)</b>	
1996-2005	<b>.209</b> <b>(.094)</b>	H4 supported	<b>1.03</b> <b>(.209)</b>	H5 supported
<b>Control variables:</b>				
Location	.105 (.076)		-.017 (.015)	
Employees:				
0-10	Base group		Base group	
11-30	<b>-.371</b> <b>(.152)</b>		.087 (.414)	
31-50	-.168 (.107)		-.152 (.353)	
51-70	-.065 (.120)		-.049 (.383)	
71-100	-.183 (.171)		-.104 (.422)	
Patents	<b>-.307</b> <b>(.091)</b>		.393 (.241)	
Bonus salary	.076 (.072)		<b>.367</b> <b>(.160)</b>	

Significant results are marked in bold

The causal model was tested using OLS and probit regression. The results of Sobel's test indicate that learning and creative climate have an indirect effect on growth, with  $z=2.0$ ,  $p<0.05$  and  $z=2.1$ ,  $p<0.05$ , respectively. This test is used to evaluate whether a mediator carries an effect from one variable to another (Mackinnon and Dwyer, 1993). These findings indicate that innovativeness acts as a full mediator for learning and creative climate.

## 5. Discussion

The results of this study support all five hypotheses. It was hypothesized that learning and creative climate have a positive impact on innovativeness, with innovativeness acting as a mediating factor. There is no evidence that learning and creative climate have a direct impact on company growth. This result is inconsistent with the previous research that examined the effect of learning orientation on firm performance (Calantone et al., 2002; Meriam, 2005). However, Nybakk (2011) does not find that learning orientation has a direct effect on firm performance.

Based on this study, it would seem that learning and creative climate have a positive and significant impact on innovativeness (H2 and H3;  $p < 0.05$ ). This finding is consistent with those of previous research and indicates the importance of learning and creative climate for innovativeness (Calantone et al., 2002; Meriam, 2005). It appears that learning is a good way to accumulate and use knowledge and thereby to foster innovation. Furthermore, the results support the notion that a creative climate has an impact on firm innovativeness and that innovativeness has a positive, significant effect on growth (H1;  $p < 0.05$ ). An innovative firm is more likely to identify and exploit competitive advantage and therefore should perform better. The qualitative study by Hansen and Hamilton (2011) also finds that a culture of innovation and flexibility leads to growth (Hansen and Hamilton, 2011). The present study empirically supports the positive impact of innovativeness. However, it seems that the effects of climate and learning are fully mediated by innovativeness. When the marginal effect of innovativeness is calculated at the mean, the result shows that the firm has a 7,5 % higher probability of becoming a gazelle. Of course, innovation can be expensive, risky and time delayed. However, because the gazelles have not experienced negative growth for four years, the time delay would have to be greater than four years to affect the conclusions obtained in this study. It appears that the impact of being innovative is positive and significant – and that high -growth companies can indeed benefit from being innovative.

Previous research shows that firm age is an important variable for firm growth. In this study, firm age is hypothesized to have an effect on innovativeness as well as growth. The results indicate that younger companies are more likely to become gazelles. Additionally, the results show a significant effect of firm age on innovativeness. This finding indicates that younger

companies exploit intangible resources better than older companies. Previous research has obtained ambiguous results with regard to firm age. (Calantone et al., 2002; Nybakk, 2012; Rhee et al., 2010; Yasuda, 2005). However, there may be two explanations for this ambiguity. First of all, in this study, 72 % of the gazelle companies were founded between 5 and 25 years ago, whereas the same is true of only 42 % of the companies in the control group. (Remember also, that due to the definition of gazelles as fast growing in the last five years, none of companies in our two sub-samples was less than five years). One reason for the difference in age could be the context of the study. Gazelle companies grow extremely rapidly, and it is possible that the pace and the enthusiasm of younger companies are greater than that of older companies. Furthermore, younger firms are not locked into old relationships and therefore are able to employ a higher degree of agility. On the other hand, it is argued that older organizations will have an advantage over younger organizations because they have had more time to learn from others and more time to develop processes and systems that allow them to obtain and use information. In addition, in terms of creative climate, older organizations will have an advantage because of the time that it takes to build a creative climate.

This study helps to close the knowledge gaps in the field by exploring how high-growth firms exploit intangible resources such as learning, creative climate and innovativeness. Cassia and Minola (2012) and Hansen and Hamilton (2011) suggest that innovativeness is a positive predictor of high growth. This study quantitatively confirms these results.

Previous research has examined the relationship between innovativeness, creative climate, learning and business performance. However, no one has examined the relationship between these intangible resources and high growth. Achtenhagen (2010) describes the heterogeneity in firm growth and highlights the importance of a greater focus on distinguishing between the different types of growth companies (Achtenhagen et al., 2010). This study separates traditional growth companies from high-growth companies by studying the top 2 % of companies in Norway in terms of their pace of growth.

Finally, this study contributes to the existing literature by examining the role of firm age in high growth companies. Previous research has obtained ambiguous results regarding the importance

of firm age. However, for high-growth firms, it seems that firm age plays an important role. This is in line with the findings from Grundström et al. (2012) and Storey and Greene (2010).

High-growth firms are important, making clear contributions in terms of job and value creation (Henrekson and Johansson, 2010). However, little research has been performed in this area. This study offers valuable information for future managers at companies that wish to grow quickly.

One main driver of growth is innovativeness, and managers should focus on how their organization can better implement innovation. Furthermore, managers should be concerned about systematically learning about markets, alliances and customers. Obtaining and using information can help to create an innovative organization and thereby increase the probability that a firm will become a gazelle. Finally, it is important to focus on fostering a creative climate that stimulates employee creativity, thereby increasing employee motivation.

In this study, gazelles are high-growth companies, and a dummy variable is used as the measure for firm performance; either the company is a gazelle, or it is not. Other studies of innovativeness use subjective measures of financial performance and find links between innovativeness and financial performance when firms are successful, which is unsurprising. However, prior studies that have used objective measures have not found a significant effect on firm performance (Jenssen, 2003). In general, the use of better, more objective methods of measuring growth will strengthen empirical testing in the field of innovation management. In this study, for instance, the measure for growth is also objective, which gives our conclusions more credibility.

## **6. Limitations and future research**

This study is cross-sectional, and longitudinal data would be more helpful in drawing conclusions about causality. In the field of innovation research, there is a dearth of robust empirical testing. Further research should focus on the time perspective and analyze competitive advantage and growth over a longer period. Longitudinal data on growth could make it possible to track growth patterns and make more accurate predictions about drivers of growth.

The growth measure consists of six criteria, and a dummy variable are created based on these criteria. Because growth is not a continuous variable, the variance in the gazelle group could be very large. It is potentially easier for companies with revenues of one million to fulfill the criteria

than those with substantially greater revenue. Thus, our growth companies are quite young overall.

As indicated by Achtenhagen et al. (2010), Cassia and Minola (2012) and Hansen and Hamilton (2012), further quantitative research on high-growth companies will be needed if we are to develop a comprehensive framework for high-growth companies.

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## Paper II



## **Growth drivers in low-technology micro-firms**

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**Purpose:** The purpose of this study is to examine the relationships among customer orientation, innovativeness, tenacity, risk taking, growth willingness and growth in low-technology micro-firms.

**Design/methodology/approach:** This study uses a quantitative approach. A survey was sent to 3,000 CEOs in the Norwegian firewood industry, and 514 usable responses were received. Confirmative factor analyses (CFAs) were conducted to assure measurement model fit. Hypotheses were tested using ordinary least squares (OLS) regression analyses.

**Findings:** The findings show that customer orientation, innovativeness and tenacity have a significant effect on the growth of micro-firms. In contrast to earlier studies, we find no support for interaction effects among innovativeness, tenacity, risk taking and customer orientation.

**Research implications:** The findings indicate that micro-firms differ in how they configure and exploit their strategic resources. Therefore, future research should treat micro-firms as a separate context.

**Originality/value:** The contributions of this paper are threefold. First, this paper offers insights into how micro-firms configure and exploit their strategic resources. Second, it examines the separate conceptual domains of entrepreneurial orientation (EO). Third, the paper elaborates on previous research to improve our understanding of the role of customer orientation (CO) in micro-firms.

**Keywords:** Growth, Micro-firms, Entrepreneurial Orientation, Customer Orientation

## **Introduction**

In recent years, there has been increased focus on understanding firm growth (Davidsson et al., 2006). One reason for this interest is that growing firms contribute significantly to job and value creation in society. However, empirical studies of growth in micro-firms with fewer than 10 employees and insights into the dynamics of micro-firm growth are lacking. In general, micro-firm growth has been neglected because micro-firms are often categorized with small and medium-sized enterprises (SMEs) (Heshmati, 2001). However, micro-firms are not simply small SMEs (Perren, 1999). The management of micro-firms differs from that of SMEs and even from that of “small firms” with up to 50 or 100 employees (Lieberman-Yaconi et al., 2010; Penrose, 1959). Micro-firms differ fundamentally with respect to management processes and behavioral responses to internal and external factors (Kelliher and Henderson, 2006; Kelliher and Reinl, 2009). For example, such firms have fewer employees, only interim employees or no employees at all; limited financial resources; and less advanced technology and processes (Lieberman-Yaconi et al., 2010). Furthermore, micro-firms are often labor intensive, flexible and non-bureaucratic, and although they cannot utilize economies of scale, they have a significant drive to succeed, typically spurred by their owners (Lieberman-Yaconi et al., 2010). Micro-firms are especially common and important in value creation in small countries. In Norway, where the present study is conducted, 90% of all firms have fewer than 10 employees.

The aim of this study is to examine how micro-firms configure and exploit resources such as risk, tenacity, innovativeness, growth willingness and customer orientation (CO) in to achieve growth. By analyzing micro-firms, this paper contributes to the growing body of literature on different strategic orientations as drivers of company growth (Baker and Sinkula, 2009; Barbero

et al., 2011; Brockman et al., 2012; Hakala and Kohtamäki, 2011; Li et al., 2008; O'Cass and Sok, 2013).

Entrepreneurial orientation (EO), which has previously been used to describe the strategic orientation of companies with respect to performance (Lumpkin and Dess, 1996), represents the capability or practice of introducing products or processes to the market. Tenacity is used as a proxy for autonomy and reflects the ability of a firm to work diligently and persistently to achieve a goal (Baum and Locke, 2004). According to Lumpkin and Dess (1996), risk taking is a central element of EO, and every venture creation entails some type of risk (Baird and Thomas, 1985). Although several definitions of innovativeness are used in the literature (Garcia and Calantone, 2002), we follow Calantone et al. (2002) in defining innovativeness as a firm's willingness to change.

CO has been an important component of the marketing literature for decades (Brockman et al., 2012; McKitterick, 1957). Narver and Slater (1990) defined market orientation (MO) as consisting of three components: CO, competitor orientation and interfunctional coordination. However, the current study considers only CO, defining it as the ability to create superior value for the target buyer (Narver, J. C. and Slater, S. F., 1990). Although marketing focuses on customer preferences and satisfaction, CO has been given little attention as an autonomous construct (Brockman et al., 2012). Focus has also been directed toward growth willingness (Cliff, 1998; Kolvereid and Bullvag, 1996; Stenholm, 2011), which is defined by Cliff (1998) as the willingness of firms to employ new people.

The contributions of this study are threefold. First, by examining low-technology micro-firms, the study offers insight into how micro-firms configure and exploit their resources to achieve growth. Second, by examining the separate conceptual domains of EO, we seek to gain

insight into how these conceptual domains affect firm growth. Despite the large body of literature on EO and its effects on financial performance, less attention has been directed to the manner in which innovativeness, risk taking and tenacity as separate conceptual domains have affected the growth of micro-firms. The disadvantage of employing a general concept of EO lies in ignoring the individual effects of each construct and in assuming the universal and homogeneous effects of each construct (Hughes and Morgan, 2007). Furthermore, Lumpkin and Dess (1996) have argued that each construct can vary autonomously and have differing effects on performance at different points in time. To capture the variance of each dimension and to fill the gap in the research, we consider the constructs of innovativeness, risk taking and tenacity separately.

Third, by investigating how the conceptual domains of EO interact with CO, scholars have found empirical support for the positive influence of MO (including CO) on the performance of large firms (Covin and Slevin, 1989; Narver and Slater, 1990), SMEs (Pelham, 2000) and small firms (Verhees and Meulenbergh, 2004). However, the influence of CO, which is typically employed along with other dimensions of MO, on micro-firm growth is less clear (Hajjat, 2002). Brockman et al. (2012) suggested that CO is a significant tool used by small firms to distinguish themselves from larger firms. Furthermore, the study of Brockman et al. (2012) found that few empirical studies have investigated CO. To fill this gap, the current study examines the direct effects of CO on micro-firm growth as well as the interaction between CO and other strategic resources. We investigate whether micro-firm growth is achieved when a firm's attitudes toward risk, tenacity and innovativeness are aligned with CO. Thus, we seek to obtain an in-depth understanding of some important antecedents that have been previously emphasized as key factors for SMEs and large firms.

Company growth has been studied from a variety of theoretical perspectives. For example, the effects of time and age have been extensively studied from an economic perspective. During the last couple of years several researchers have addressed new perspectives (McKelvie and Wiklund, 2010; Wright and Stigliani, 2013). This article adopts a resource perspective that is derived from the work of Penrose (1959). Several studies have investigated the antecedents of small firm growth. However, a broader perspective is needed to enhance new theories and to gain an in-depth understanding of the field (Grant and Perren, 2002). Specifically, an understanding of firm growth barriers within specific contexts is required (Doern, 2009).

### **Theoretical background and hypotheses**

Delmar et al. (2003) showed that approximately 10 percent of growing firms grow through acquisition (Delmar et al., 2003). However, in this study, we focus on organic growth because of its contribution to job and value creation in society. Thus, this study proposes that CO, innovativeness, tenacity, risk taking and growth willingness are drivers of growth in low-technology micro-firms. Furthermore, we explore the idea that CO moderates the effects of innovativeness, risk taking and tenacity on growth (Figure 1).

### **Figure 1 in here!!!**

#### *Customer Orientation*

It is widely accepted in the literature that MO leads to improved company performance (Jaworski and Kohli, 1993; Kirca et al., 2005). Firms with a MO can more effectively respond to customer needs and thereby create added value for customers. To sell a product in the market, a firm must offer the buyer some added value. Therefore, firms that constantly develop methods to create

additional value for buyers tend to develop competitive advantages. A customer-oriented firm understands this process and knows that such a competitive advantage can foster growth in the organization. In the study conducted by Zahra (2008), no connection between MO (including CO) and performance in low-technology firms was found. However, Zahra (2008) did not examine micro-firms but rather compared firms of all sizes. Nevertheless, other studies have found connections between CO and performance in SMEs (Brockman et al., 2012; Hajjat, 2002; Kwaku and Satyendra, 1998). Verhees and Meulenbergh (2004), for example, studied small firms (rose growers) and found that customer market intelligence positively influenced performance. However, our review of the literature revealed no studies that strongly indicate a relationship between CO and growth in micro-firms. In micro-firms, CO relies on only a few individuals and on the networks of these key individuals; therefore, the individual characteristics of the people in a firm play a significant role. The closeness between management and customers suggests that CO could be important in micro-firms (Appiah-Adu and Singh, 1998; Brockman et al., 2012). Because of the lack of hierarchy in the management of micro-firms, employees also tend to be closer to their customers (Kelliher and Reinl, 2009). Furthermore, micro-firms must focus on customer needs with regard to product specifications and delivery. Micro-firms will also often have an advantage in being able to respond to market signals more rapidly than larger firms can (Wickham, 2006). Therefore, because it is plausible that the effect of CO could be transferred to micro-firms, we advance the following hypothesis:

*Hypothesis 1: A higher degree of CO is associated with higher growth in low-technology micro-firms.*

### *Risk taking*

Although the effect of risk taking on growth and performance is less obvious, previous research has suggested that risk taking leads to great variations in performance (McGrath, 2001). Given that risk-oriented firms are action-oriented and do not neglect new business opportunities, they must also be willing to accept the risk of failure. Especially in rapidly changing markets, risk-averse firms are likely to miss opportunities. The result of risk aversion is then be weaker growth because such firms fail to seize market opportunities (Hughes and Morgan, 2007).

In micro-firms, risk taking is an individual characteristic. Risk reflects the willingness of owners to accept personal financial risks. Perren (1999) identified active risk taking as a key factor for micro-firms that wish to grow beyond the micro-firm phase. By contrast, the study of Rauch and Frese (2000) suggested that the risk-taking propensity of a business owner is negatively related to firm success. This relationship could result from the different perceptions of risk, as business owners may not perceive risk in the same manner that an observer would.

In low-technology sectors, risk may be minimal because of a lack of large-scale investment. Furthermore, in non-hostile environments, risk taking may not distinguish more successful firms from less successful firms (Covin and Slevin, 1998). We expect a positive relationship between risk taking and growth, but the relationship may be weak.

*Hypothesis 2: A higher degree of risk taking is associated with higher growth in low-technology micro-firms.*

## *Tenacity*

Autonomy is traditionally a part of the EO construct and is defined as the ability to introduce an idea and follow it through to completion (Lumpkin and Dess, 1996). However, in a micro-firm, nearly every activity depends on the CEO, who is typically also the owner. Therefore, we argue that tenacity could capture the variance of this construct. Because tenacity measures a personal trait of the entrepreneur, it is used as a substitute for autonomy in this particular context. Tenacity or perseverance has previously been linked to entrepreneurial business growth (Baum and Locke, 2004; Baum, 2009)

The literature suggests that tenacity is crucial for entrepreneurial success and business growth because business start-ups inevitably confront barriers to entry in their chosen markets (Baum et al., 2001; Baum and Locke, 2004; Baum, 2009). According to Davidsson (1991), firm growth results from continuous entrepreneurship. Accordingly, high-growth entrepreneurs must continuously experiment and exhibit patience in their search for options and solutions. Baum (1995) concluded that firm growth is directly influenced by entrepreneurial tenacity. Given the definition of autonomy, we find several aspects of autonomy that resemble tenacity. It is logical to assume that autonomy is less relevant to micro-firms than to larger firms. However, with respect to EO in small to large firms, autonomy is important because independent action and the ability to complete projects are necessary to the implementation of entrepreneurial performance (Burgelman, 2001). If individuals in a company are constrained in their actions, then entrepreneurial activities are likely to fail (Hughes and Morgan, 2007). Moreover, Burgelman (2001) argued that autonomy is an important element of venture development and growth. Lumpkin et al. (2009) and Hughes and Morgan (2007) addressed the neglect of autonomy that is

associated with a lack of individual influence. Therefore, to capture the variance of individual influence in micro-firms, we hypothesize that tenacity has a positive effect on micro-business growth.

*Hypothesis 3: A higher degree of tenacity is associated with higher growth in low-technology micro-firms.*

### *Innovativeness*

Although researchers differ in their opinions regarding which criteria are necessary for innovation, there is consensus that innovation denotes something new. According to West and Farr (1989), although it is implied that innovations create benefits, such benefits may vary or even fail to accrue. The importance of innovativeness for different measures of firm performance has been investigated across a wide range of industries, with studies showing a strong empirical connection (Calantone et al., 2002; Damanpour et al., 1989; Hult et al., 2004; Nybakk, 2012). According to O'Regan et al. (2006), the ability to innovate is a key factor in sustaining the competitive advantage of any firm. However, few empirical studies have explored the relationship between innovativeness and growth. For example, although Hansen and Hamilton (2011) found that innovativeness is an important factor contributing to growth, the study was limited in that it relied on qualitative data.

Even less attention has been devoted to innovativeness and growth in low-technology micro-firms. Overall, micro-firms tend to be more conservative than larger firms and therefore focus more on incremental innovations (Kelliher and Reinl, 2009). Kirner et al. (2009) studied low-technology firms and found that such firms lag behind high-technology firms with regard to

product and service innovation but are equal or even superior in terms of process innovation. Moreover, controlling for age and size, De Jong and Vermeulen (2006) found that knowledge-intensive industries scored higher with respect to the most innovative practices and developed more new products. However, according to Thornhill (2006), even if innovation is more common in high-technology firms, innovative firms enjoy greater revenue growth, irrespective of the industry. Nybakk (2008) studied micro-firms in the nature-based tourism industry and subsequently among agriculture entrepreneurs, finding that innovativeness had a positive effect on performance and growth (Nybakk et al., 2009). Low-technology micro-firms typically exhibit less or non-radical innovation compared with that in large high-technology firms. However, incremental process, market and business model innovations geared toward reducing production costs, increasing sales or adding value to products by reaching new markets or by adding services are assumed to be important. These points support the following hypothesis.

*Hypothesis 4: A higher degree of innovativeness is associated with higher growth in low-technology micro-firms.*

#### *Growth willingness*

To achieve growth in micro-companies, founders must be willing to employ new people. Growth willingness has previously been used both as a dependent variable (Cliff, 1998; Dutta and Thornhill, 2008) and as an independent variable. According to Davidsson et al. (2006), we still do not know whether growth willingness is a strong predictor of growth (Davidsson et al., 2006). The effect of growth willingness is less obvious than one would expect. Wiklund and Delmar (2008) stated that the complexity of behavior that leads to growth could affect the significance of

this variable. Furthermore, environmental constraints and insufficient ability could affect the strength of this relationship (Delmar and Wiklund, 2008).

We expect that the willingness to expand employment is an even stronger predictor of growth in micro-firms than in larger companies, as the risk and administration involved in employing new people could have great economic consequences for micro-firms. Furthermore, the context of this study includes “life-style” entrepreneurs who seek to generate income that is sufficient to earn a living (Papadaki and Chami, 2002) and who are sometimes motivated by non-economic goals, thus accepting suboptimal profits (Ateljevic and Doorne, 2000). It is believed that such entrepreneurs have realistic views of the future growth prospects of their companies. We follow Papadaki and Chami (2002) in concluding that for entrepreneurial ventures, willingness to grow is an important predictor of actual growth.

*Hypothesis 5: Growth willingness has a positive influence on company growth in low-technology micro-firms.*

#### *The moderating influence of customer orientation*

Slater and Narver (1995) suggested that firms require an alignment of entrepreneurship and MO to successfully innovate in turbulent times (Slater and Narver, 1995), whereas Atuahene-Gima and Ko (2001) found that companies with a high EO and MO perform better in turbulent environments (Atuahene-Gima and Ko, 2001). Other researchers have examined CO as an autonomous construct. Appiah-Adu and Singh (1998) addressed the interaction between innovativeness and CO and found a positive correlation (Appiah-Adu and Singh, 1998). Moreover, Brockman et al. (2012) found a significant effect of the moderating influences of risk taking and innovativeness (Brockman et al., 2012). Furthermore, although customer-oriented

firms are likely to respond to customer needs (Christensen and Bower, 1996), there is a risk associated with customer-oriented firms because they lack the ability to develop products that customers cannot describe. It is believed that firms must find a balance between MO and EO to achieve effective innovations and performance (Slater and Narver, 1995). Although the various EO dimensions appear to exert a positive influence on growth, the effect of this linkage may be influenced by the extent to which each EO dimension is aligned with CO.

*CO and innovativeness.* Several scholars have found a positive effect of MO on performance, even in SMEs (e.g. Dibrell et al., 2011). Moreover, previous research has emphasized the complementary effects of CO and innovativeness (Brockman et al., 2012; Li et al., 2008). In fact, Baker and Sinkula (2009) examined the complimentary effects of MO and EO on successful innovation in small firms. However, innovativeness in a micro-firm typically involves small, incremental changes. Therefore, with respect to cost reductions and technical improvements in production, customer needs will be less important than other concerns, and innovativeness will not be sufficient with regard to the business model. Thus, for example, seeking new and better ways to deliver products must include responsiveness to customer needs (Li et al., 2008).

*Hypothesis 6a: A higher degree of CO is associated with a greater effect of innovativeness on growth in low-technology micro-firms.*

*CO and tenacity.* Tenacity reflects the ability to work diligently and persistently to achieve a goal (Baum and Locke, 2004). When such a characteristic is combined with CO, a firm can assume the lead in establishing brand recognition and serving customer needs (Atuahene-Gima and Ko, 2001; Lumpkin and Dess, 1996). Although the influence of CO on the relationship between

tenacity and growth has not yet been examined, it is widely accepted that a high degree of CO allows companies to identify the needs of their customers. To use and exploit the information that can be obtained from a strong CO, a firm must be diligent and goal oriented. This assumption leads to the following hypothesis.

*Hypothesis 6b: A higher degree of CO is associated with a greater effect of tenacity on growth in low-technology micro-firms.*

*CO and risk taking.* Brockman et al. (2012) suggested a positive effect of the interaction between risk taking and CO, arguing that a higher degree of risk taking implies faster decision making and thus a more rapid response to information. By contrast, Li et al. (2008) suggested a negative relationship. Some observers claim that resources may be the most important determinant in the creation of competitive advantages (Barney et al., 2001). However, micro-firms that invest their limited resources in risky projects may not have sufficient resources available to respond to customer needs (Li et al., 2008). Because micro-firms in low-technology, less knowledge-intensive sectors have limited resources, we follow the argument of Li et al. (2008) and offer the following hypothesis.

*Hypothesis 6c: In low-technology micro-firms, a higher degree of CO is associated with a smaller effect of risk taking on growth.*

## **Methodology**

### *Context*

The context of this study is the Norwegian firewood industry. We selected this context for several reasons. This industry is characterized by many micro-scale businesses that are often operated by farmers, forest owners or small rural workshops (Kärh  and Jouhiah , 2009). Furthermore, innovation within this industry is primarily incremental, and the focus is on increasing production efficiency and reaching new markets (NorskVed, 2011). By choosing a traditional, homogeneous micro-scale industry such as the firewood industry in Norway, we can obtain control over the micro unit and thereby avoid noise in the dataset. The context of this study overcomes the previously noted shortcomings and provides useful information to contribute to our understanding of micro-business growth. Although firewood is the most significant source of bio-energy, business and management research on this industry has been limited.

#### *Measurement, sampling and data collection*

Latent variables were measured using multiple scales that were adopted from previous studies and partially modified for this study (Churchill Jr., 1979). A seven-point Likert scale was used throughout the study (1=strongly disagree, 7=strongly agree). See Table 1 for all the main latent variables together with the corresponding items. CO was measured with two items from the scale that was developed by Narver and Slater (1990). Innovativeness was measured with three items that were adopted from the works of Calantone (2002) and Nybakk et al. (2009). Tenacity was measured with three items from the study of (Gartner et al., 1991), and risk was measured with a three-item scale that was developed by Li et al. (2009). A single item related to the willingness to employ more people was used as a proxy for growth willingness. This definition is similar to that used by Cliff (1998). Growth was measured using a three-item scale that combined employee

growth, sales growth and market share growth (Li et al., 2009). The scales were modified to fit a micro-firm context based on a pilot study that was sent to five firewood producers and five industry experts.

The target population consisted of CEOs in the Norwegian firewood industry, including one-person businesses and micro-firms with fewer than nine employees. Minimum annual total sales were set at 4,000 EUR (30.000 NOK) to exclude firewood producers that produce firewood only for household use. The selection of 3,000 firewood producers was random and was based on the only existing list owned by the Norwegian firewood trade association. Given some restrictions (complete anonymity), a modified Dillman (2000) approach was used in three ways, including in the provision of information regarding the survey, the use of one full questionnaire with return envelopes and the provision of an internet survey option.

#### *Data screening and non-response bias*

A total of 917 responses were received (30.5% response rate). After deleting all cases that did not meet the criteria described above and all cases that had an excessive number of missing values (all items missing a minimum of one main latent variable), we arrived at 514 usable observations. The reason for most deletions was that those firms had not sold firewood in recent years (less than 4,000 EUR). By truncating the dataset downwards, we introduce possible selection bias into the dataset. However, we believe that because the lower limit amount (4,000 EUR) is so low, we can obtain more accurate estimates by applying the truncation.

Non-response bias was tested by comparing early and late respondents, as recommended by Armstrong and Overston (1977). The respondents were compared with respect to CO, innovativeness, tenacity, risk taking and size, and no non-response bias was found ( $p < 0.05$ ).

Harman's single-factor test was used to test for common method bias by loading all items used in the study into an exploratory factor analysis. More than one factor came up with an eigenvalue greater than one and no single factor explained a majority of the total variance, indicating that common method bias was not a concern (Podsakoff and Organ, 1986).

#### *Analysis and measurement model*

As the model includes latent variables, a confirmatory factor analysis (measurement model) was conducted using the structural equation modeling tool, EQS (Bentler, 2006). The refined measurement model fit the data well (CFI\*=0.99 and RMSEA\*=0.027 [0.012-0.040], which are robust values). The standard loadings on the items in the measurement model ranged from 0.63 to 0.97, and the standard errors ranged from 0.26 to 0.77. All factors had acceptable values for the average variance extracted (AVE).

**Table 1: Parameters from the measurement model**

<i>Construct</i>	<i>Items</i>	<i>Standard Loadings</i>	<i>Standard Error</i>
Growth (CR=0.84, AVE=0.60)			
	Increased sales in the firewood trade	.938	.346
	Increased firewood market share in the local area	.777	.629
	Increased total performance (man-labor year/work hours) in connection with the sale/production of firewood	.853	.522
Customer orientation (CO) (CR=0.84, AVE=0.52)			
	Do you seek information regarding the needs and desires of customers?	.704	.629
	Do you change your product and service offerings according to the needs and desires of customers?	.853	.522
Innovativeness (CR=0.96, AVE=0.58)			
	I/we often seek new ways of doing things	.790	.613
	I/we are creative in the way that we do things	.846	.533
	I/we often experiment with new ideas	.909	.417
Tenacity (CR=0.97, AVE=0.60)			
	I/we do not give up, and I/we always finish what we start	.819	.574
	I/we work hard to resolve any problems that arise	.969	.248
	Even if I/we repeatedly fail at something, I/we always try again until I/we succeed	.760	.650
Risk taking (CR=0.94, AVE=0.49)			
	I/we are willing to take great risks if we have the opportunity for great profit	.781	.624
	I/we are willing to make a risky investment if it can bring great profit	.869	.496
	I/we like risky projects that many others avoid	.675	.738
Model fit statistics: $\chi^2=116.491$ , $p=.00$ , CFI*=.99, IFI*=.99, $\chi^2/df=1.28$ , SRMR=.054, RMSEA*=.033 [.019, .046], *=robust indicators, AVE=average variance extracted, CR=composite reliability			

Tables 1 and 2 clearly indicate that all the correlation coefficients are lower than 0.27 and that the AVE is higher than 0.49. Discriminant validity was tested by comparing the square root of the AVE for the latent construct with its correlation with the other latent constructs, as recommended by Fornell and Larcker (1981). The result of this test provided evidence of discriminant validity. Given the good model fit and discriminant validity, composite variables were calculated using the mean.

*Control variables.* Firm age, the number of employees, the size of forestland, distance to market and “well-being” were included as control variables. Previous research has yielded ambiguous results with regard to the importance of firm age (Hart, 2000). Given high transport costs, it is logical to assume that distance to the market has a negative effect on growth in this context; therefore, distance was included as a control variable. The area of forestland that is owned by the respondents was assumed to influence the growth potential of micro-firms in this sector because of the role of access to resources. One can buy and sell timber at market prices; however, owning forestland could lead to lower transaction costs and thus facilitate growth. Finally, the well-being of entrepreneurs (personal preferences for firewood) was included as a control variable. Carter (2011) argued that entrepreneurship involves more than static measurements of performance (Carter, 2011). Life-style entrepreneurs seek stability and sufficient income to make a living (Papadaki and Chami, 2002). To adjust for this assumption and to capture the variance of “value builders,” the well-being of entrepreneurs is included as a control variable. It should also be noted that this industry is partly driven by the culture and long tradition of firewood production in Norway (Mytting, 2011). Finally, the quantity of labor (man-labor months) was included in the analysis.

## **Results and discussion**

The mean, standard deviations and correlations of all the main independent and dependent composite variables are presented in table 2.

**Table 2: Pearson correlation coefficients, standard deviations and means for the composite variables (mean of all items in each construct)**

	Mean <sup>1</sup>	Std	G	CO	INN	TEN	RISK
Growth	4.97	1.77	1				
Customer orientation	3.60	1.30	.20**	1			
Innovativeness	5.35	1.30	.22**	.30**	1		
Tenacity	5.73	1.05	.20**	.21**	.27**	1	
Risk taking	2.63	1.55	.05	.14**	.22**	.01	1
GW	5.30	2.25	.10*	.03	.07	.03	.09

\*=Correlation is significant at the 0.05 level.

\*\*=Correlation is significant at the 0.01 level.

<sup>1</sup>Scale; 1=strongly disagree, 7=strongly agree.

**Table 3: Customer orientation, risk taking, tenacity, innovativeness and growth willingness effects on micro-firm growth**

	Model 1		Model 2		Model 3	
	<i>Standardized Coefficients</i>	<i>P-value</i>	<i>Standardized Coefficients</i>	<i>P-value</i>	<i>Standardized Coefficients</i>	<i>P-value</i>
Control variables:						
Company age	-.03	.54	-.02	.67	-.02	.70
No. of employees	.07	.16	.02	.67	.03	.50
Forest land	.02	.65	.02	.64	.01	.80
Distance to market	-.06	.17	-.08	.09	-.08	.07 <sup>†</sup>
Well-being of entrepreneur	.09	.05 <sup>†</sup>	.02	.66	.02	.65
H1: Customer orientation (CO)			.15	.00**	.18	.00**
H2: Risk taking			-.01	.84	.01	.79
H3: Tenacity			.12	.01**	.11	.03*
H4: Innovativeness			.12	.02*	.10	.05*
H5: Growth willingness			.08	.09 <sup>†</sup>	.07	.16
H6a: Risk taking * CO					-.06	.23
H6b: Tenacity * CO					-.07	.19
H6c: Innovativeness * CO					-.05	.33
	R <sup>2</sup> =0.015		R <sup>2</sup> =0.094		R <sup>2</sup> =0.106	
	Sig. F=0.23		ΔR <sup>2</sup> =0.079		ΔR <sup>2</sup> =0.012	
	N=496		N=496		N=471	

†=significant at the 10 percent level, \*=significant at the 5 percent level and \*\*=significant at the 1 percent level. All models were tested using an OLS regression model.

The casual model was tested using the ordinary least squares (OLS) method. The results show that CO (H1:  $p < 0.01$ ), tenacity (H3:  $p < 0.05$ ) and innovativeness (H4:  $p < 0.05$ ) have significant positive effects on firm growth. However, risk taking and growth willingness do not significantly

affect firm growth (H2:  $p > 0.05$ ), and none of the interaction effects are significant (H6a,b,c:  $p > 0.05$ ). Among the control variables, distance to market was found to be significant ( $p < 0.1$ ).

Based on the data, CO is positively related to company growth (H1:  $P < 0.01$ ). Recently, Brockman et al. (2012) found a positive effect of CO on performance in small firms. Similarly, O’Cass and Sok (2013) found a positive influence of marketing capability on SME growth. However, Zahra (2008) did not find any significant relationship between CO and performance in low-technology firms. The ambiguous results support the idea that micro-firms differ from SMEs and that CO could be the key distinguishing factor providing small firms with their competitive advantage.

We find no evidence of a positive effect of risk taking on micro-firm growth in low-technology companies (H2:  $p > 0.05$ ). Although new venture creation involves some type of risk, previous research has shown that risk has a greater effect on performance in rapidly changing markets. Therefore, we believe that the context of this study provides some explanation for the insignificant result, as the context is that of a relatively conservative, less knowledge-intensive sector. Another explanation could be that the current study was conducted in Norway, a country with a strong social security system with high salaries and low unemployment compared with China, the country that was examined in the study of Li et al. (2008). Accordingly, the perceived risk in Norway is less than in other countries, as alternatives always exist.

Tenacity, the personal characteristics that are necessary to follow an idea to completion, was found to be positively related to micro-firm growth (H3:  $p < 0.05$ ), which is consistent with previous research (Baum et al., 2001; Baum and Locke, 2004). As several of the examined companies had either no employees or only a few employees, the individual characteristics of

entrepreneurs may have a greater effect compared with those in large firms. The ability to follow ideas to completion is considered an important driver of micro-firm growth.

We found evidence of a positive effect of innovativeness on micro-firm growth (H4:  $p < 0.05$ ), a finding that is consistent with the previous literature (O'Cass and Sok, 2013). Brockman et al. (2012) found that a focus on risk taking, innovativeness and opportunity aligned with CO had a positive effect on performance in small firms; however, the authors found no direct effect on performance, a finding that is inconsistent with previous literature (Hughes and Morgan, 2007; Wiklund, 1999; Zahra, 2008). Innovative firms are likely to perform better than less innovative firms because of the competitive advantages that they create. An innovative micro-firm is more willing to experiment with new approaches and to examine problems from new angles, and our results show that such firms benefit from this characteristic. However, innovativeness, especially with regard to new product development, can be costly for firms. Furthermore, innovations demand substantial amounts of time, and companies expect a time delay between the implementation of an innovation and the receipt of benefits. Nevertheless, the results show that low-technology micro-firms could also benefit from innovativeness.

Growth willingness shows no significant effect on actual growth (H5:  $p > 0.05$ ), perhaps because managers may be willing to grow but do not know exactly how to achieve growth as the task of achieving growth is a complex undertaking (Baum et al., 2001; Kolvereid and Bullvag, 1996).

The results show no significant evidence of interaction effects (H6a,b,c:  $p > 0.05$ ). In a recent study, Li et al. (2008) examined the moderating effects of EO and found a significant interaction between innovativeness and CO. Previous research has found positive results for the interaction between several strategic orientations (Barbero et al., 2011; Hakala and Kohtamäki,

2011; O'Cass and Sok, 2013). However, one explanation for the significant effect could be the different contexts of the studies, suggesting that resource orchestration that is necessary to achieve company growth may be different in micro-firms. The insignificant result regarding the moderating risk of CO is consistent with previous research (Li et al., 2008).

### **Theoretical and managerial implications**

Several empirical studies have found support for the link between EO and performance (Wiklund, 1999; Zahra and Covin, 1995). Previous research, for example, has shown that firms with a high EO often tend to perform better than other firms. However, other studies have shown that the EO-performance relationship is contingent on environmental and organizational factors (Covin and Slevin, 1989). Although the relationship between EO and different performance measures has been heavily studied from both theoretical (Lumpkin and Dess, 1996) and empirical perspectives (Hughes and Morgan, 2007; Li et al., 2008; Zahra, 2008), many unanswered questions remain.

Previous studies have reported that the growth process is highly complex and cannot be modeled in the absence of strict assumptions. Comparing firms of all sectors and sizes is simply inadequate because of the great diversity of tasks that are involved in managing large and small organizations (Penrose, 1959). The growth pattern that we observed among firewood producers is believed to be stable. By examining a context such as the firewood industry, this study overcomes previous shortcomings, such as natural changes in intentions and goals over time and the heterogeneity of growth patterns. In the context of Norwegian firewood producers, entrepreneurship is expected to be associated with the use of strategic resources and should lead

to growth. The insignificant results with regard to interaction effects indicate that micro-firms differ in how they configure resources and therefore must be treated as a separate context.

This study uses tenacity as a proxy for autonomy in the EO construct. It is believed that the characteristics of autonomy are not compatible with the micro-firm context because of the lack of employees in such cases. Nevertheless, it is important to capture the ability to achieve goals and complete projects. As argued above, previous research has tended to view EO as a single construct. The findings of this study, however, suggest that risk, innovativeness and tenacity cannot necessarily be merged into one meaningful construct. When one merges separate conceptual domains, information regarding actual entrepreneurial processes is lost. Accordingly, one should also consider that the low level of sophistication and the micro-scale of firewood operations entail that the dominant relationships of firewood firms are with the selected EO conceptual domains and with customers, leaving insignificant roles for several intra-organizational factors.

The results of this study show a significant influence of customer orientation on company growth. However, we found no effect of the interaction between CO and other resources, such as innovativeness and tenacity. This result indicates that low-technology micro-firms exploit CO as a single resource but are not sufficiently sophisticated to combine and configure CO with other strategic resources. This finding contrasts with that of Brockman et al. (2012). The explanation for this ambiguity can be found in the research context. The companies addressed in the present study are low-technology companies and therefore may not have the same type of focus on combining and configuring resources. Zahra (2008) has previously demonstrated how the interaction between strategic orientations is contingent upon the technology level in a particular industry.

Although the importance of low-technology firms is recognized, few studies have examined business growth, innovation and entrepreneurship within this context. This study provides valuable information and insights for managers in these types of micro-firms. One main growth driver in low-technology micro-firms is customer information. Even if an overall CO is less important in these industries, managers should increase their focus on customer needs with respect to the delivery of goods. Although opportunities for radical innovations are limited, it is important that the quality of goods meet customer expectations. Furthermore, managers should place increased emphasis on seeking new and more efficient ways of producing goods and improving their business models. The limited opportunities for advances in product development render innovations less important for growth in micro-firms than in other firms. However, it is equally important for managers to emphasize the importance (for both themselves and their employees) of the ability to implement ideas and follow them to completion.

Today, traditional firewood is a significant component of global bio-energy consumption in both developed and developing countries. The industry has received increasing recognition among policymakers in many countries because of its role in reducing carbon dioxide emissions in sustainable production contexts. Despite the importance of traditional low-technology firms, the research on this sector remains scarce. To reach the ambitious goals of reducing carbon dioxide emissions and increasing rural development, more research on this sector is needed. The findings of this research suggest that government policy can play a role in increasing entrepreneurship in the firewood sector. Policies that assist the firewood industry in developing a more professional management approach—for example, with regard to CO and innovativeness—can assist the industry in becoming more entrepreneurial and thus increase its ability to grow.

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# Paper III



**Corporate governance in high-growth firms: The impact of board composition on growth intentions**

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# **Corporate governance in high-growth firms: The impact of board composition on growth intentions**

## **Abstract**

This paper examines the effects of board composition on the growth intentions of small, young, high-growth firms. We integrate research on corporate governance with the literature on firm life cycles and company growth and hypothesize that gender diversity and a high ratio of independent directors on the board will reduce a firm's growth intentions, whereas founder role duality will increase firm growth intentions. Using survey data from 773 small, young, high-growth Norwegian firms and from a comparison group of 243 small- and medium-sized firms, we find that gender diversity has a negative effect on growth intentions. The presence of a founder either in management or on the board positively influences growth intentions in high-growth firms, whereas founder role duality does not seem to significantly affect the growth intentions of high-growth firms. A high ratio of independent directors does not seem to facilitate further growth in small, young, high-growth firms.

**Keywords:** Board composition, corporate governance, high-growth firms

## 1 Introduction

Small, high-growth firms generate a disproportionately large share of new jobs compared to non-high-growth firms, even during a recession (Henrekson and Johansson, 2010; Jawahar and McLaughlin, 2001). Furthermore, previous research indicates that high-growth firms generally have higher levels of innovation (Coad and Rao, 2008; Grundström *et al.*, 2012), are more export oriented (Parsley and Halabisky, 2008), and have important spill-over effects (Stam and Wennberg, 2009). High-growth companies are typically young, small firms (Storey and Greene, 2010). Small- and medium-sized enterprises (SMEs) – and young firms in particular – created 85% of all new jobs in the EU between 2002 and 2010 (Linneman, 2012). Thus, it is unsurprising that young SMEs have received increasing interest from both scholars and policy makers seeking to understand the success factors of high-growth firms and the factors that influence their survival (Storey and Greene, 2010).

*Sustaining* growth is a major strategic challenge for young, high-growth SMEs, and research shows that for these firms, growth at one point in time does not predict further growth at later periods of time (Delmar *et al.*, 2003; Nicholls-Nixon, 2005). Thus, a significant challenge for a young, high-growth firm is to continue growing and to successfully transform into a more mature and stable firm (Bonn and Pettigrew, 2009; Filatotchev *et al.*, 2006; Jawahar and McLaughlin, 2001).

Empirical findings on the antecedents of growth in small firms suggest that internal factors such as entrepreneurial motivation and firm strategies are important determinants of growth (Hansen and Hamilton, 2011; Moreno and Casillas, 2008). In a review of small firm

growth, Macpherson and Holt (2007, p. 178) note that “...growth cannot be achieved without managerial capabilities to provide specialist functions and processes designed to support and exploit entrepreneurial actions”. We build on these findings and argue that sustained growth in small, high-growth firms is not simply an evolutionary process; instead, it requires strategic motivations and decisions – which we label growth intentions (Dutta and Thornhill, 2008). Furthermore, we believe that the boards of directors of these firms play a major role in fostering their strategic intention to grow.

Several studies indicate that the board of directors is critical to the development of a growth strategy in young, high-growth firms (Carpenter and Westphal, 2001; Lynall *et al.*, 2003; Zahra and Pearce, 1989). However, this role is different from the role of the board in larger, more mature companies. In the early stages of a firm's life cycle, the separation between ownership and control is less relevant than in publicly traded firms because CEOs (and founders) typically have financial interests that are aligned with those of the firm owners (Garg, 2012). High-growth firms may thus have fewer agency problems and less of a need for ownership control and management monitoring than do larger, mature firms. (Certo *et al.*, 2001). Small firms often suffer from resource scarcity and have smaller networks than do their larger competitors. In small firms, the board typically represents human and social capital that may not yet be available internally within the firm (Bennett and Robson, 2004). Moreover, in young, high-growth firms, the role of the board in providing important advice and access to resources is considered to be particularly important (Bennett and Robson, 2004; Forbes and Milliken, 1999), and the boards of young firms should be composed accordingly. However, although there is a large body of literature on corporate governance and firm performance, little is known about how

boards contribute to strategic decision making and sustained growth in high-growth firms at early stages in their life cycles (Garg, 2012).

Considering the board as a strategic decision-making group (Forbes and Milliken, 1999), we make the basic assumption that a unified and focused board whose interests are aligned with those of the management/entrepreneur group will facilitate strategic intention to grow. We thus examine board composition in young, high-growth firms by examining three attributes that might affect the board's ability to agree on a growth-focused strategy: the share of independent directors, gender diversity, and founder duality (i.e., when the founder is both a member of the management team and a board member).

We contribute to the literature on entrepreneurial firms and firm growth in two ways. First, our study adds to the understanding of growth in young firms by examining factors that influence a central condition for sustained growth: a firm's strategic intention to grow. Second, our study furthers our understanding of how high-growth firms may select boards that contribute to sustained growth (Filatotchev *et al.*, 2006). On this subject, several scholars have suggested that corporate governance research should apply a contingency approach when studying board characteristics and decision-making outcomes (van Knippenberg *et al.*, 2004; Zona *et al.*, 2012). We respond to these suggestions by providing empirical evidence about the relationship between board composition and strategic decision making in young, high-growth firms.

## **2 Theory and hypotheses**

### **2.1 Growth intentions in young, high-growth firms.**

This study analyzes young, rapidly growing SMEs in Norway. A life cycle perspective is particularly suitable for use in identifying the particular characteristics of this type of firm.

Depending on the model selected, a firm's life cycle will include three (Bonn and Pettigrew, 2009; Quinn and Cameron, 1983) or four (Lynall *et al.*, 2003; Quinn and Cameron, 1983) stages; the second stage in both models is characterized by rapid growth.

In the high-growth phase, a firm typically must create and develop internal structures, increase coordination and communication, and manage new functions and organizational units (Lynall *et al.*, 2003; Smith *et al.*, 1985). These functions require an internal focus. Firms at this stage may also consider transitioning to public ownership (Bonn and Pettigrew, 2009) and may investigate other methods of expansion (Jawahar and McLaughlin, 2001). Furthermore, these firms often add new products and markets into their product portfolios during this phase. A firm in the growth stage of its life cycle thus faces many demands, some of which conflict with one another. Internal and external complexity rapidly increases during the growth stage, but formal strategic planning systems seldom develop in tandem with these changes (Bingham and Eisenhardt, 2011).

Consequently, one common challenge at this stage is simply to maintain growth intentions, i.e., to facilitate and secure further growth in conjunction with the increased structural and functional complexity of the organization (Kazanjian, 1988). Previous studies show that the growth intentions of companies are not homogeneous (Bradley *et al.*, 2011; Cliff, 1998; Dringoli, 2012; Kolvereid, 1992). Intention to grow defines a firm's strategic goals and is thus one of the most critical strategic decisions of a firm. An increasing body of literature shows that the board's input significantly shapes a firm's strategic decisions in terms of securing critical knowledge for strategy formulation and monitoring strategy implementation (Kim *et al.*, 2009; Stiles, 2001). Growth intentions are thus likely to be affected by the board (Dringoli, 2012).

## 2.2 Board composition and strategic decision making in high-growth firms.

Fulfilling the strategic goal of sustained high growth puts special demands on the board of directors. First and foremost, board members must agree on the firm's growth goals.

Furthermore, empirical research indicates that the board must be able to make decisions quickly and effectively, to remain focused, and to align interests around narrow goals. In general, small firms emphasize action orientation and real-time strategies, and each of these features requires a board that is able to provide timely support to top management (Machold *et al.*, 2011). This demand is stronger in small, high-growth firms. In successful high-growth companies, management is able to react quickly to major structural changes in the firm's industry sector (Zook and Allen, 1999). Thus, Baum and Wally (2003) find that rapid decision making is a predictor of performance with respect to growth. Research on family firms shows that high-growth family firms define themselves as first to market or early followers (Upton *et al.*, 2001). However, maintaining this position requires the ability to fail rapidly and inexpensively, and use these experiences in future decision making. In short, more and better growth opportunities will be available to firms that increase the speed of their strategic clock (Covin *et al.*, 2006).

## 2.3 Founder duality and growth intentions.

We argue that in high-growth firms, founder role duality (in which the founder is a member of the management team and on the board) is likely to ameliorate the effects of conflicting viewpoints and goals among board members, which improves decision-making speed and enhances the focus on growth. Founder duality unifies board decision making for three reasons.

First, the hybrid role of the founder-manager-board director may decrease the cognitive heterogeneity of the board and suppress conflicting views in strategic decision making. Founder-managers can drive director selection processes because of their greater influence in the board

(Withers *et al.*, 2012). Founders are often the embodiment of the firm's culture, and they typically possess unique networks and have exclusive knowledge about the firm (Garg, 2012). In founding a firm, founders typically develop the firm's strategy, and they often continue to have strong psychological attachment and involvement over time (Brunninge *et al.*, 2007; Garg, 2012). Nelson (2003) notes that founders are generally situated in the upper echelon of the organization after the start-up phase. This finding indicates that the founder-managers have greater prestige and power than other board members. Withers *et al.* (2012) examine the implications of one board member having more power than the rest of the board. Based on the studies by Westphal and Zajac (1995) and Fich and White (2003), Withers *et al.* conclude that CEOs who are in power seek to populate the board with members who are both demographically similar to them and sympathetic towards their ideas. The likelihood that founder-managers will select and support board members with outlooks similar to their own thus reduces the possibility that a high-growth firm's board will present alternative strategies and challenge the firm's growth intentions. Furthermore, research on group diversity indicates that a high-powered individual can easily exert disproportionate influence over other group members in decision making (Harrison and Klein, 2007). Active founders are the longest-serving members of the organization, and their presence on the board may lead to increased strength within the board's collective mindset (Nelson, 2003).

Second, in young SMEs, the founder and owners will have interests that are more aligned than those of larger, public firms. The likelihood that managers will misuse shareholders' trust is smaller because of these firms' small size and resource base (Garg, 2012). Top managers also typically own a significant share of the firm (Garg, 2012). Aligning the interests of the founder-manager with those of the board members further reduces the possibility that the board will

challenge the growth focus of the firm. Consistent with this line of reasoning, Brunninge *et al.* (2007) find that closely held SMEs typically face less pressure from outside investors to engage in strategic change than their larger counterparts do.

Third, Hambrick and Crozier (1986) find that founders can help growing firms overcome challenges that arise in that stage of the firm's life cycle. Having founders on the board ensures that the culture of the firm is preserved and provides goal clarity for the entire organization. Furthermore, founders typically prefer flat structures and ensure that management stays "close to the action". Thus, we hypothesize the following:

*Hypothesis 1: Founder role duality is positively related to the growth intentions of high-growth firms.*

#### 2.4 Independent directors and growth intentions.

We also argue that the presence of independent directors is likely to reduce the growth intentions of high-growth firms. Independent directors typically have extensive industry knowledge but do not have an ownership interest in the firm (Garg, 2012). In joining the board, they seek to help top management by offering advice and to enhance their own status among other directors by acting as experts (Garg, 2012). However, independent directors are outsiders who have little interaction with other board members and executives outside board meetings. Zona *et al.* (2012) thus argue that an outsider-dominated board has a relatively small chance of understanding the full potential of the firm, which makes the board less likely to explore and experiment. This effect can be problematic because small, young companies in their growth stage are likely to operate in an environment that requires rapid adaptation and flexibility to ensure competitive advantage (Filatotchev *et al.*, 2006). Moreover, if independent directors have little firm-specific

knowledge but significant industry experience, they may rely heavily on industry norms and existing practices (Kor and Sundaramurthy, 2009). These directors may thus oppose growth strategies that differ from industry norms (Kor and Sundaramurthy, 2009). However, the emphasis on the board's resource and strategy functions increases the influence of independent directors on decision making in high-growth firms (Ben-Amar *et al.*, 2011; Filatotchev *et al.*, 2006).

The motivation of independent directors to join the board and their possible reliance on “industry recipes” (Spender, 1989) – combined with their service role in decision making – imply that independent directors are both expected and more likely to present critical opinions and contradict other board members. A board with a high number of independent directors is thus likely to express more disagreement with the firm's strategic goals. Consequently, decision making is more time consuming and less focused, which reduces growth intentions. Therefore, we formulate the following hypothesis:

*Hypothesis 2: The smaller the share of independent directors, the stronger a high-growth firm's growth intentions will be.*

## 2.5 Gender diversity and growth intentions.

Following Forbes and Milliken (1999), who conceived of the board as a decision-making team, researchers have shown that demographic heterogeneity affects decision-making processes and outcomes on a board. From a resource-based perspective, differences among board members in terms of human capital and social capital (professional background, education, experience, external networks) are considered to contribute to firm performance through strategic change (Brunninge *et al.*, 2007) or innovation (Zona *et al.*, 2012), for example. Thus, heterogeneity

creates a divergence of viewpoints, more ideas, and a wider range of information that must be processed (van Knippenberg *et al.*, 2004). From a social psychological perspective, however, demographic diversity in a group – and gender diversity in particular – has been linked to social categorization mechanisms that hamper group performance through mechanisms such as lower group cohesion and trust, restrictions on cooperation, and increased relational conflict (van Knippenberg *et al.*, 2004). Thus, it is difficult to predict the general effects of board gender diversity, and the empirical findings are mixed (Carter *et al.*, 2003). How gender differences are perceived and how they affect board outcomes may depend on how these outcomes are defined. In the present study, we define performance as part of strategic growth intention, and we propose that a unified and cohesive board with shared goals and the ability to make decisions rapidly will facilitate this strategy. Thus, the outcomes predicted by resource-dependence theory for demographic diversity – such as a divergence of viewpoints and a wider range of information to process – may not support growth intentions; instead, such outcomes might delay the decision-making process by presenting more strategic alternatives. Furthermore, the social categorization mechanisms that are predicted by social identity theory may negatively affect the strategic intention to grow. There are empirical indicators that social categorization mechanisms involving gender heterogeneity on a board tend to evoke stereotypes and negative perceptions of the other sex. For example, using chairpersons of the boards as respondents, Nielsen and Huse (2010) found that if the women on the board were regarded by the respondents as having different *values* than the men on the board, they were understood to have made a positive contribution to decision making. However, if they were considered dissimilar in terms of their *professional experience*, their contribution to board decision-making was understood to be negative. Furthermore, the gender of the respondent affected the assessment of women's contributions to

decision making; male respondents rated women's contributions significantly lower than female respondents rated them. Perceptions of women as "unequal" board members were significantly associated with lower ratings of their contribution to decision-making (Nielsen and Huse, 2010).

These results indicate that social identity mechanisms may influence gender-diverse boards, making women an out-group (Ashforth and Mael, 1989), which leads to lower group cohesion and lower performance ratings for female directors. Such perceptions may hinder a group's ability to align and pool the human capital of the board, which will decrease cohesion among board members and may lower the ability of the board to cultivate a shared and concentrated focus that enables it to reach quick agreements. In a minority/majority situation, particularly one involving a small minority of one gender, the majority will be more prone to define the minority as tokens and simply ignore them (Elstad and Ladegard, 2012; Torchia *et al.*, 2011). Thus, we suggest that the effects of gender diversity on group decision making will be stronger when gender diversity is greater, i.e., when the board is more gender balanced.

Thus, we formulate the following hypothesis:

*Hypothesis 3: The greater the gender diversity on a board, the lower the growth intentions of a high-growth firm.*

### **3 Methodology**

#### **3.1 Data and descriptive statistics.**

The sample for this study consists of the fastest-growing companies in Norway. High-growth companies ("gazelles" or "gazelle companies") typically constitute 2-5% of the total business population in a country (Sims and O'Regan, 2006). The leading Norwegian business newspaper, Dagens Næringsliv (DN), publishes a list of high-growth companies each year; this list, as

published in 2010, 2011, and 2012, provided the population for our data set. If a company is on the list once (or more) for these three years, it is a part of the population. To be included on the list of gazelle companies, a firm must fulfill six requirements:

1. Delivered approved accounts.
2. At least doubled their revenue during the previous four years.
3. Earned revenues of at least one million NOK (137000 EUR).
4. Have a positive EBIT.
5. Avoided negative growth.
6. Is incorporated (i.e., is registered as a corporation or limited liability company).

If a company fulfills all six criteria, it is considered a high-growth firm (i.e., a gazelle firm); otherwise, it is considered a "regular" company. Delmar *et al.* (2003) emphasize the importance of using an appropriate growth indicator. We utilized the growth definition developed by David Birch (Birch, 1987). Criterion 2 required that the companies in our sample were at least five years old. By applying all six criteria, we were able to obtain a sample of firms with a stable pattern of high growth during the previous four years.

A questionnaire survey was conducted that was grounded in previous research and administered to the CEO of each company. A total of 2116 gazelles were identified for 2012, 1996 for 2011, and 2579 for 2010. The interviews conducted were computer assisted telephone interviews (CATI). The questionnaire was originally written in English and was then translated to Norwegian.

A total of 1000 responses were obtained from the gazelles, of which 459 observations were obtained from the 2012 list (for a response rate of 21.7 percent), 268 observations were collected from the 2011 list, and 273 observations were obtained from the 2010 list. To correct

for possible selection bias caused by non-respondents, the sample was compared to the population on basis of the number of employees. A mean comparison test showed no significant differences between the groups ( $p>0.05$ ). In addition, a comparison group was randomly sampled from the total population of Norwegian SMEs to compare the high-growth firms in our sample of analysis with the general population of Norwegian firms. This step yielded 501 responses.

A total of 72 missing values were identified. No pattern in missing values was recognized, and therefore, the observations were deleted. The study was conducted in Norway, and gender diversity in Scandinavian countries may differ from other countries, as posited by Kolvereid (1992). Norway has a quota rule that requires public limited companies to have at least 40 percent of each gender on their boards. No companies that are subject to the quota rule – i.e., no publicly listed companies – were included in our sample. There are several international definitions of SMEs. We followed the definition used by the Norwegian government and defined SMEs as companies with fewer than 100 employees. Furthermore, we excluded acquisition growers, as recommended by McKelvie and Wiklund (2010), such that only organically grown companies were included in the sample (McKelvie and Wiklund, 2010). Based on Blau's index for gender diversity, companies with only one board member were also excluded from the sample. The final sample groups used in our analysis thus consisted of 773 high-growth firms and 243 companies (in the comparison group).

Table I shows the distribution of company age, sector, and location, and table II shows the descriptive statistics for the explanatory variables for the samples of high-growth firms and comparison companies.

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INSERT TABLES I & II ABOUT HERE

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Table II shows that the high-growth companies are generally 15 years younger than the companies in the comparison group. Furthermore, we note that the high-growth companies are smaller in terms of their number of employees. This finding supports our theoretical emphasis on young, small, high-growth firms.

### 3.2 Measurements.

#### *Growth intentions*

A two-item, seven-point Likert scale (1 = completely disagree, 7 = completely agree) was used to measure growth intentions. The two items used were adopted from the scale developed by Kolvereid (1992); they indicate whether the company intends to grow in terms of revenue and number of employees during the upcoming five years. The scale showed satisfactory reliability, with a Cronbach's alpha of 0.75 (Bryman and Cramer, 2001).

#### *Gender diversity*

Gender diversity was measured as the degree of gender heterogeneity among the board members, as measured using Blau's index (Blau, 1977). Blau's index has been preferred as the optimal measure of diversity as variety (Harrison and Klein, 2007; Miller and Del Carmen Triana, 2009) and as a means to measure diversity among categorical variables (Harrison and Sin (2006)). Biemann and Kearney (2009) argue that Blau's index is dependent on group size and therefore suggest a correction. In this study, we believed that board size might have an effect on

growth intentions, and we therefore implemented the estimator independent of size, as recommended by Biemann and Kearney (2009):

$$\text{Blau}_N = 1 - \sum \frac{N_i(N_i-1)}{N(N-1)}$$

where  $N_i$  is the proportion of members in each of the  $i$  number of groups and  $N$  is the group size. The index ranges from 0 (for the homogenous group) to 1 (for the group with both genders equally represented).

#### *Independent directors*

Independent directors were defined as board members who are neither owners nor employees of the company. The data show that 55 percent of the gazelle companies in our sample have external board members on the board, whereas the corresponding figure is 51 percent for the comparison group companies. To capture the effect of independent directors, we measured the number of independent directors on the board and used the share of independent directors in the model.

#### *Founder role duality*

Founder role duality was measured as a dummy variable that indicates whether the founder is on the board and is part of the top management team. If the founder is both a board member and part of the top management team, the value is 1; otherwise, it is 0. To capture the effect of duality, we also added dummy variables for the situations in which the founder is a board member and is not part of the top management team (Founder-director) and for those in

which the founder is part of the top management team but is not a board member (Founder-leader).

### *Control variables*

To avoid any bias based on the actual growth of the company, we controlled for revenue growth in the periods 2009-2010 and 2010-2011. Actual revenue for each company was obtained from the publicly available Norwegian database Proff.no.

We also included firm size as a control variable because the size of a firm measured by the number of employees might have a significant effect on the growth intentions of the company. Furthermore, we controlled for company age. Because the survey was conducted in Norway and because the oil sector dominates in the western part of the country, location is included as a control variable to adjust for any variation associated with regional clusters. To avoid sector differences that might bias the results, we include sector as a control variable to nullify the effects of rapidly growing sectors. Board size may have an influence on strategic decisions made by the board and was therefore also included as a control variable. Finally, the firm's access to capital was included because of its possible influence on growth intentions.

### 3.3 Data analysis

Basic statistical analysis was conducted using Stata 12. The model was tested using ordinary least squares (OLS) regression. To correct for heteroskedasticity, robustness estimators were used. To test the three hypotheses, we regressed growth intentions on the control variables and then on the board composition variables in sequential steps. To ensure the significance of the board composition effects, we used a Wald test to test the change in the R-square for each independent variable added to the model. Although the change in the R-square is small, the

results are significant ( $p < 0.05$ ). The variables analyzed are primary dummy variables and indexes; thus, common method variance is not likely to threaten the validity of the results. The means, standard deviations, and correlations of all variables in both samples are presented in Table III.

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INSERT TABLE III ABOUT HERE

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#### **4 Findings**

To test our hypotheses, we first conducted an OLS regression analysis of the sample of high-growth firms. The results are presented in Table IV.

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The results presented in Table IV show that the effect of founder role duality is positive and significant and that it provides support for H1. The results also show a negative effect of gender diversity on growth intentions, which supports H3. The results for independent directors are insignificant. Thus, H2 is not supported. We subsequently conducted identical regression analyses on the comparison group; the results are presented in Table V.

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The results for the comparison group exhibit the insignificant effects of gender diversity and founder role duality on growth intentions in that group. Furthermore, the results show that independent directors have a positive significant impact.

Comparing the results presented in Tables IV and V, we see that the negative effect of gender diversity and the positive effect of founder duality that were predicted in our hypotheses are shown only for high-growth firms; these effects are not visible for the general population of firms. This result is consistent with the general mixed findings on gender diversity because the effects appear to be context-dependent. The results also indicate that although there is no statistically significant support for the effects of independent directors in high-growth firms, there are differences between these firms and the general population of firms that are in the predicted direction. However, somewhat surprisingly, independent directors do not appear to have a significant influence on strategic decision making in high-growth firms.

## **5 Discussion**

### **5.1 Theoretical implications.**

This study investigated the effects of board composition on growth intentions in high-growth firms. We analyzed three dimensions of board composition: gender diversity, founder role duality, and the share of independent directors on the board. We found support for our hypothesis that gender diversity negatively affects growth intentions in high-growth firms. The results were significant for the sample of high-growth companies and insignificant in the

comparison group of companies. This finding lends support to a contingency perspective, suggesting that there are other requirements for boards in high-growth firms in addition to innovation in strategic situations, in which such boards may benefit from diversity (Miller and Del Carmen Triana, 2009; Zona *et al.*, 2012). This conclusion is also supported by the dearth of significant results for the comparison sample, which is consistent with several recent reviews of gender diversity, suggesting that general effects are difficult to find (Carter *et al.*, 2003 {Jackson, 2003 #38}). The negative effect of gender diversity on growth intentions in high-growth firms may indicate that social processes associated with gender diversity – including both information processing and social categorization mechanisms – may hamper the ability of young, high-growth firms to rapidly select a common strategy.

The effect of founder role duality is significant in the high-growth sample but insignificant in the comparison group. Entrepreneurial, rapidly growing companies typically face the classic question of whether the entrepreneur should remain involved in the firm or leave the company. Some scholars have noted that the role of the entrepreneur at this stage may be not as critical for further growth as conventional wisdom might suggest (Willard *et al.*, 1992). Our findings show that the entrepreneur does not have to be both a manager and a board member to support a firm's growth intentions and to exercise his/her influence on the company. Thus, the entrepreneur is a strong force in strategic decision making in these types of firms. Furthermore, our results are consistent with previous research that has shown that the positive effect of founder role duality on firm performance is contingent on firm size and age: the relationship is stronger in smaller, younger firms than in larger, older firms (Jayaraman *et al.*, 2000).

Finally, we found that the proportion of independent directors has a positive effect on growth intentions in the comparison group but no effect on growth intentions in high-growth

firms. The absence of an effect in high-growth firms might be better explained if we more closely examine the role of independent directors on boards. Independent directors are likely to be outsiders who have little interaction with the board; thus, they do not have a strong impact on strategic decisions (Zona *et al.*, 2012). Gabrielsson and Huse (2005) note that in small- and medium-sized family businesses in particular, the owner-manager exercises a significant influence on the board; in contrast, outside members play a “rubber stamp” role in approving what the owner-manager has previously decided. In small- and medium-sized venture-capital backed firms, outside directors’ key task is to use their networks to find key personnel and to secure additional funding (Gabrielsson and Huse, 2005). Consequently, in small, young firms, outside directors may have little effect on growth intentions *per se*.

In agency theory, the presence of independent directors is considered to enhance firm performance (Jensen and Meckling, 1976); the same is true of resource dependence theory (Preffer and Salancik, 1978). Our findings, however, offer support for the view that the influence of outsiders is not the same in different empirical settings (Gabrielsson and Huse, 2005). This observation might also explain the previous non-significant findings related to the presence of outside directors in a meta-study by Dalton, Daily, Ellstrand and Johnson (1998).

Overall, there are two main implications to be derived from our mixed findings. First, the results support the argument of other scholars that a contingency approach can help us study board diversity and outcomes and should be further pursued (Miller and Del Carmen Triana, 2009; Zona *et al.*, 2012). More specifically, our study indicates that young, high-growth firms may benefit more from different governance structures than larger, more mature firms.

Second, our results imply that different dimensions of board composition and diversity may be relevant in different strategic contexts. For example, board diversity has been found to positively affect innovation by providing a variety of perspectives and knowledge bases, whereas our findings indicate that a unified board with interests that are well aligned with the management/entrepreneur best supports growth intentions. These findings may suggest that different strategic contexts generate different governance issues. Consequently, more fine-grained theories may be needed to build solid theories about board composition. Adams *et al.* (2008) even argue that the board structure of a firm is endogenous and, hence, that ...”governance structures arise endogenously because economic actors choose them in response to the governance issue they face” (Adams *et al.*, 2008).

## 5.2 Managerial implications.

Overall, our findings are consistent with the conclusions of Ben-Amar *et al.* (2011) that suggest that board diversity does not have an overall positive or negative effect. Our findings imply that the authorities should not enact regulations for board composition across all types of companies because the performance impact of board diversity may depend on the firm’s life cycle and its strategic goal setting. Corporate governance codes that are suitable for larger, mature firms may offer little guidance for managers about to how to compose an efficient board in entrepreneurial settings. Our findings show that efficient boards are context and strategy dependent and suggest that managers should thus identify peers to learn from in composing efficient boards. The founder is crucial for a company that is seeking further growth, whereas the particular role of the founder – whether the founder serves the firm as a manager or on the board of directors – is not as important. This finding implies that high-growth companies that seek further growth should keep the founder involved in the company. Furthermore, the strategic role of independent directors on

a board does not appear to be particularly important, which puts a significant amount of discretion into the hands of firm management as they seek to board members that can support and facilitate a growth strategy. More specifically, the role and composition of the board may change in accordance with temporary needs and requirements because firms in a high-growth stage are likely to experience major change processes on the way to maturity. Thus, we believe that our study is supportive of managers and owners who seek to align their boards with the life-cycle stages of their firms (Bonn and Pettigrew, 2009; Filatotchev *et al.*, 2006)

### 5.3 Limitations and future research.

Our study contributes to the understanding of corporate governance in young, high-growth firms. Given the role that high-growth firms have in enabling economic growth (Henrekson and Johansson, 2010; Jawahar and McLaughlin, 2001), more research addressing this group of firms is warranted. Previous research has failed to establish consistent relationships between board composition and firm performance (Adams *et al.*, 2008; Dalton *et al.*, 1998; Lynall *et al.*, 2003), and some scholars argue that one of the main reasons for the inconsistency of these findings is that board composition has little direct influence on the operation of a firm.

We received partial support for our hypothesis that a homogenous board is better than a diverse board for high-growth firms, and we think that this line of research is worth pursuing further. Our findings indicate that a more contextual understanding of the role of the board is required. A resource-based perspective may be useful for further investigating the human and social capital that is required in high-growth firms and the resources that the board can provide. Future research might also examine the decision-making capability of the board. Because high-growth firms at an early stage of their life cycle often have less professional management, the

board may play an important role in strategic decision making. However, we still know little of the decision-making dynamics on the boards of high-growth firms.

Our study addressed three aspects of board composition that could be further considered in future research. For example, the characteristics of independent directors should be investigated further. Do independent directors play a distinct role on the boards of high-growth firms, and what characteristics should these directors have? This is a crucial issue for the founders and owners of young firms that want to continue to grow, as diversity is most likely not a universal means of maintaining a focus on growth. It appears that founders of high-growth firms exercise a strong positive influence on their firms' growth intentions, but this influence does not necessarily require a dual role in management and on the board. Our companies were pre-IPO firms, and our findings may indicate that investors are overly skeptical about the involvement of founder-managers in the further development of high-growth firms. It might be fruitful to examine whether the role of the founder in supporting the firm's growth goals changes after an IPO. Indeed, the role of the founder merits further investigation. The founder may play many different roles and may combine the roles of CEO, director, and board chairperson. What is the optimal role combination in a high-growth context?

Thus, consistent with the finding of Adams *et al.* (2008) that suggests that board composition is endogenous to the firm, we suggest that adopting a contingency perspective will be crucial to advancing research on board composition (Zona *et al.*, 2012) and that the life-cycle approach facilitates fruitful analyses of fundamental strategic positions that should guide the design of a firm's governance structure (Bonn and Pettigrew, 2009; Lynall *et al.*, 2003).

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**Table I: Respondent information.**

	Frequency	Share of total (%)
<b>Foundation year</b>		
>1979	126	12.4
1980-1989	112	11.0
1990-1999	213	21.0
2000-2005	346	34.0
2006-	219	21.6
Total	1016	100%
<b>Sector</b>		
Primary	22	2.2
Industry	138	13.5
Construction	172	17.0
Retail	276	27.3
Transport	51	5.0
Hotel and serving	23	2.3
Services	309	30.3
Education, health and culture	25	2.4
Total	1016	100%
<b>Location</b>		
Capital	272	26.7
East	200	19.6
South	82	8.1
West	265	26.3
Middle	86	8.4
North	111	10.9
Total	1016	100%

**Table II:** Descriptive statistics.

	High-growth firms		Control group	
	<i>mean</i>	<i>Std. dev</i>	<i>mean</i>	<i>Std. dev</i>
Foundation year	1997	14.4	1982	31.5
Number of employees	11.9	13.7	15.5	16.6
Board size	3.5	1.3	3.6	1.3
Founder duality	0.84	0.36	0.58	0.49
Number of women	0.72	0.82	0.82	0.83
Number of Independent directors	0.92	1.1	0.91	1.0

**Table III:** Means, standard deviations, and correlations among the studied variables for high-growth firms.

	Mean	Std	1	2	3	4	5	6	7	8	9	10
1. Growth	4.48	1.67	1									
2. Founder duality	.84	.36	.00	1								
3. Gender diversity	.35	.37	-.13**	.06	1							
4. Independent directors	.26	.27	.02	-.08*	.06	1						
5. # Employees	11.9	13.7	.16**	-.13**	-.14**	-.01	1					
6. # Owners	2.64	1.41	.10**	-.05	-.29**	-.27**	.16**	1				
7. Board size	3.49	1.26	.10**	-.25**	-.19**	.06	.23**	.45**	1			
8. Access to capital resources	2.61	1.87	.03	-.01	-.07*	-.01	-.03	.02	.04	1		
9. Growth 09-10	17.7	43.8	.10**	.03	-.06	-.03	-.00	-.00	.00	.03	1	
10. Growth 10-11	12.9	43.8	.11**	.03	-.08*	.01	.17**	.02	-.02	-.02	-.03	1
11. Foundation year	1997	14.4	.05	.19**	.02	-.05	-.11**	-.04	-.15**	.04	.12**	.02

**Table 3: Correlation matrix**

\* = Correlation significant at the 0.05 level

\*\* = Correlation significant at the 0.01 level

N = 773

**Table IV:** Gender diversity, founder-role duality, and the ratio of independent directors regressed on growth intentions for the sample of high-growth firms.

	<b>Model 1</b>		<b>Model 2</b>	
	<i>Standardized Coefficients</i>	<i>T-value</i>	<i>Standardized Coefficients</i>	<i>T-value</i>
<b>Control variables:</b>				
Number of employees	.017	4.03**	.016	3.91**
Company age	-.005	-1.18	-.003	-.82
Number of board members	.072	1.34	.069	1.26
Access to capital	.033	.98	.025	.74
Growth 09-10	.003	2.21*	.002	1.87
Growth 10-11	.003	2.79**	.003	2.44*
Number of owners	.030	.60	.010	.19
<b>Location:</b>				
Capital area	Base group		Base group	
East	-.301	-1.69	-.310	-1.74
South	-.160	-.79	-.153	-.74
West	-.038	-.24	-.041	-.26
Middle	.075	.34	.112	.49
North	.176	.82	.207	.96
<b>Sector:</b>				
Primary	Base group		Base group	
Industry	1.02	2.79**	1.01	2.89**
Construction	.590	1.65	.580	1.69
Retail	1.09	3.24**	1.09	3.37**
Transport	1.16	2.87**	1.14	2.92**
Hotel and serving	1.19	2.42*	1.27	2.71**
Services	1.50	4.51**	1.50	4.70**
Education, health and culture	1.06	2.35*	1.09	2.45*
Founder-leader			.654	1.83
Founder-director			.589	2.05*
H1: Founder duality			.523	2.57**
H2: Independent directors			.245	1.11
H3: Gender diversity			-.401	-2.39*
	<b>R<sup>2</sup> = 0.106</b>		<b>R<sup>2</sup> = 0.120</b>	

Table 4: High-growth firms: N = 773

\* = Significant at the 0.05 level

\*\* = Significant at the 0.01 level

**Table V:** Gender diversity, founder, and ratio of independent directors regressed on growth intentions for the sample of randomly assigned firms.

	<b>Model 1</b>		<b>Model 2</b>	
	<i>Standardized Coefficients</i>	<i>T-value</i>	<i>Standardized Coefficients</i>	<i>T-value</i>
<b>Control variables:</b>				
Number of employees	.013	1.52	.012	1.59
Company age	.011	3.71**	-.009	-3.05**
Number of board members	.176	1.65	.132	1.26
Access to capital	.224	3.83**	.236	4.08**
Growth 09-10	.002	.95	.002	1.00
Growth 10-11	.001	.26	.001	.31
Number of owners	-.122	-1.40	-.045	-.48
<b>Location:</b>				
Capital area	Base group		Base group	
East	-.752	-2.02*	-.742	-2.01*
South	-.227	-.49	-.266	-.60
West	-.097	-.27	-.247	-.70
Middle	.274	.56	.268	.55
North	-.032	-.07	-.304	-.69
<b>Sector:</b>				
Primary	Base group		Base group	
Industry	.383	.66	.185	.30
Construction	-.630	-1.14	-.824	-1.42
Retail	.164	.31	-.044	-.08
Transport	.284	.37	.115	.14
Hotel and serving	.634	.93	.578	.79
Services	.271	.47	.009	.01
Education, health and culture	n.o.	n.o.	n.o.	n.o.
Founder-leader			.433	.56
Founder-director			.938	1.32
H1: Founder role duality			.391	1.55
H2: Independent directors			1.20	2.56*
H3: Gender diversity			-.231	-.69
	<b>R<sup>2</sup> = 0.204</b>		<b>R<sup>2</sup> = 0.243</b>	

Table 5: Control group: N = 243

\* = Significant at the 0.05 level

\*\* = Significant at the 0.01 level

n.o. = no observations

# Paper IV



# **Entrepreneurial orientation in acquisition and organic high-growth firms**

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**Abstract:** This study examines the relationships among innovativeness, competitive aggressiveness, risk taking and growth in organic and acquisition high-growth firms. A survey answered by 1,000 high-growth firms and 500 control firms resulted in 1,308 usable responses for our analysis. The findings show that innovativeness has a greater impact on organic high-growth firms than on acquisition high-growth firms. By contrast, competitive aggressiveness has a greater impact on acquisition high-growth firms. To avoid underestimating innovativeness, future research should consider the mode of growth.

*Keywords:* Growth intentions, high-growth firms, growth mode, entrepreneurial orientation, SME

## **1. Introduction**

The growth of small and medium-sized enterprises (SME) disproportionately contributes to job and value creation within society (Henrekson and Johansson, 2010). Previous research shows that high-growth firms are frequently small and young (Storey and Greene, 2010), are more likely to develop new products and processes (Coad and Rao, 2008; Grundström et al., 2012), have important spill-over effects (Stam and Wennberg, 2009) and are more export-oriented (Parsley and Halabisky, 2008). A better understanding of how these firms achieve success is important not only for small-firm managers but also for policy makers.

This paper aims to provide an in-depth understanding of how entrepreneurial orientation (EO) affects growth. To further the understanding of the relationship between EO and growth, this study uses a separation approach to examine the dimensions of EO and different modes of growth.

The strategic choice of introducing products and/or processes into the market is fundamental to EO. While innovativeness, competitive aggressiveness, risk taking, autonomy and proactiveness are all dimensions of EO (Lumpkin and Dess, 1996), in this study, we will focus on innovativeness, competitive aggressiveness and risk taking. Several definitions of innovativeness have been employed in the literature (Garcia and Calantone, 2002). Consistent with Calantone et al. (2002), we define innovativeness as a firm's willingness to change. Following Hughes and Morgan (2007), competitive aggressiveness is defined as the intensity with which a firm chooses to compete and attempt to outmaneuver its competitors. Risk taking reflects a company's willingness to operate under uncertainty.

Previous research has examined how EO affects company performance and growth. The entrepreneurship literature shows that EO is a predictor of company performance (Lumpkin and Dess, 1996; Wiklund, 1999; Zahra and Covin, 1995). Although EO is a well-established concept in the entrepreneurship literature, little research has investigated the relationship between EO and company growth (Covin et al., 2006; Hughes and Morgan, 2007; Moreno and Casillas, 2008). Furthermore, research shows that EO is contingent upon environmental factors, such as the level of technology in the sector (Zahra, 2008). Brockman et al. (2012) found a positive effect of EO in small firms. However, the literature has neglected to investigate whether the effect of EO on firm growth is contingent upon a firm's mode of growth, which is unfortunate because the growth mode can be an important factor in the effect of EO on company growth.

Researchers have mainly adopted an aggregate approach to measure EO (Hughes and Morgan, 2007). In so doing, the dimensions of EO are assumed to have a uniform impact. Recently, several researchers have elaborated on the discussion about the dimensions of EO (Covin and Lumpkin, 2011; Covin and Wales, 2012). To capture the effect of the separate dimensions of EO, this study investigates the effect of three separate dimensions on company growth. This study thus applies a multidimensional approach to obtain as much information as possible about EO's different dimensions, and we answer the call from Covin and Wales (2012) and contribute to further development of the EO construct.

Company growth has been intensively studied over the last decade. However, previous studies on firm growth are limited by poorly explained variance and inconclusive results. Achtenhagen et al. (2010) argued that differences in measurement methods have resulted in fragmented theory on firm growth. The theory regarding high-growth firms is even more fragmented. Having

examined decades of research on company growth, Storey and Greene (2010) argued that the only definitive finding is that high-growth companies are young and small and that growth is “spotty,” which indicates that growth during one period does not necessarily affect growth in the following period. Delmar et al. (2003) concluded that there is significant heterogeneity among high-growth firms.

Previous research on company growth has focused on factors affecting growth and has described the various elements that contribute to the growth rates of firms (Cassia and Minola, 2012; Davidsson and Henrekson, 2002; Hansen and Hamilton, 2011; Henrekson and Johansson, 2010; Moreno and Casillas, 2008). McKelvie and Wiklund (2010) found that a focus on the mode of growth rather than on growth outcomes may be crucial for advancing the literature. To understand high-growth SMEs, for example, researchers should focus on how firms grow rather than how large they grow (Gilbert et al., 2006; McKelvie and Wiklund, 2010). Wright (2013) suggested using a more in-depth perspective on company growth. Navarro et al. (2012) examined how SMEs combine different forms of growth. Despite this focus in the previous research, a number of unanswered questions remain.

This paper identifies three types of firms with respect to growth: acquisition high-growth firms, organic high-growth firms and non-gazelles (control group). Organic high-growth firms are defined as gazelle companies that have grown purely from within. Acquisition high-growth firms are defined as gazelle companies that have increased revenues through acquisitions or mergers. Non-gazelles are defined as all companies that are not defined as high-growers. This study attempts to clarify how the dimensions of EO affect growth in the three growth groups. To obtain a clear picture of company growth, we examine firms’ average revenue growth during the most

recent four years, in addition to firms' growth intentions.

The contribution of this study is threefold and contributes to the literature on EO and SME growth by using a separation approach. First, we separate EO into three dimensions. Second, we separate growth into three different modes. Finally, we separate growth into two measurement components. By separating the components into more detailed dimensions, this study analyzes the growth mode and heterogeneity of high-growth firms and offers insight into how different types of high-growth firms exploit the dimensions of EO.

Growth is an evolving process and frequently results from strategic decisions made by a company (Dutta and Thornhill, 2008; Kolvereid and Bullvag, 1996; Stenholm, 2011). To explain how firms overcome hurdles and become high-growth companies, we must understand what drives their growth intentions. In addition, growth intentions may change during the life cycle of a company (Dringoli, 2012). One of the most crucial strategic decisions that a company can make is the decision to pursue growth. Therefore, this study examines how EO affects growth intentions and revenue growth in Norwegian SMEs. This study elaborates on the discussion begun by Achtenhagen et al. (2010) and examines a subjective measure, growth intentions, and an objective measure, revenue growth. In this manner, we aim to clarify some of the complex and multidimensional processes involved in company growth.

The theoretical framework and hypothesis development are described in the following section, which is followed by a methodological section in which survey design, descriptive statistics and measurement models are described. The remainder of the paper presents the results and provides a discussion of the findings.

## **2. Hypothesis development**

### **2.1 Innovativeness**

Several scholars have emphasized the importance of innovativeness for firm performance (Calantone, R. J. et al., 2002; Deshpandé and Farley, 2004; Han et al., 1998). Moreover, the relationship between innovativeness and firm performance is particularly important in small firms (Verhees and Meulenbergh, 2004). The relationship between innovativeness and growth has been studied from both a qualitative (Hansen and Hamilton, 2011) and a quantitative perspective (Grundström et al., 2012; Hölzl, 2009).

The literature has thoroughly debated the relationship among firm innovativeness and both financial performance and growth. However, in studying this relationship, growth intentions and revenue growth should be distinguished. Previous studies have argued that although innovations create benefits, such benefits can vary or fail to materialize (West and Farr, 1989). Uncertainty is inherent in innovation, and innovation does not necessarily lead to improved financial performance or growth (Cooper, 2001). The uncertainty related to innovation will likely change over a firm's life cycle, which further complicates the relationship between innovation and growth (Heimonen, 2012). This argument is supported by empirical studies that have shown that the relationship among product innovation, firm growth and firm profitability may be negative, at least in the short term (Freel and Robson, 2004).

The majority of scholars claim that innovation and firm innovativeness are the key components of a firm's success (Hult et al., 2004) and competitive advantage (Damanpour, 1991). Thus, based on the previous literature, we propose the following hypotheses:

*H1a: A higher degree of innovativeness is associated with higher growth intentions.*

*H1b: A higher degree of innovativeness is associated with higher revenue growth.*

## **2.2 Competitive aggressiveness**

The concept of competitive aggressiveness was first introduced in Miller's (1983) definition of the entrepreneurial firm. Lumpkin and Dess (1996) defined competitive aggressiveness as part of EO. An aggressive approach and intense competition are crucial for survival, particularly for new firms. Competitive aggressiveness has been previously linked to business performance (Ferrier et al., 1999; Ferrier, 2001; Hughes and Morgan, 2007). However, few studies have examined the relationship between competitive aggressiveness and company growth.

An aggressive firm moves quickly in an effort to outperform its competitors. Aggressive firms are willing to sacrifice profitability to gain new market shares (Dess and Lumpkin, 2005). By continuously launching new and unpredictable attacks, these companies attempt to make their competitors unsure of how to respond. If the attacks are predictable or if their volume is insufficient, rivals typically learn how to respond to the attacks in a structured manner, and the tactic fails (Dess and Lumpkin, 2005; Lumpkin and Dess, 2001). Ferrier (2001) defined four subdimensions of competitive aggressiveness: unpredictability, complexity, duration and volume.

Companies that increase the volume of their aggressive actions may be able to exploit more opportunities for growth. By increasing the duration of its aggressive actions, a company builds knowledge and routines; thus, it increases its decision-making efficiency. The complexity and

unpredictability of aggressive actions are important because they confuse the target of the action and therefore delay competitors' responses (Ferrier, 2001).

A competitively aggressive strategy involves continuously collecting information about competitors and then exploiting these competitors' weaknesses to increase the firm's market share (Hughes and Morgan, 2007). Because an aggressive firm continuously uses incremental actions to outmaneuver its competitors and ultimately buy them out, we suggest the following hypothesis:

*H2a: A higher degree of competitive aggressiveness is associated with higher growth intentions.*

*H2b: A higher degree of competitive aggressiveness is associated with higher revenue growth.*

### **2.3 Risk taking**

In taking on new projects or activities, companies must cope with uncertainty and, thus, the risk of failure. Conversely, risk-averse companies may risk missing opportunities (Lumpkin and Dess, 1996). In acting conservatively, risk-averse firms delay new products or innovations. Such companies may experience less growth than their risk-taking counterparts (Hughes and Morgan, 2007). Risk-taking firms are willing to develop innovations without being certain of the market response or exactly which actions they should take, which leads to opportunity-seeking behavior and a higher likelihood of growth (Hughes and Morgan, 2007; Lumpkin and Dess, 1996).

Previous research has provided ambiguous results regarding how risk taking affects firm performance. Hughes and Morgan (2007) found a weakly positive result for family firms, whereas Naldi et al. (2007) found a negative effect. Casillas et al. (2010) found that risk taking

had no direct effect on company growth. In a hostile environment, however, risk taking has a positive effect (Casillas et al., 2010).

Risk taking can be costly. However, we believe that a company must continuously meet customer demands and increase its market share to achieve growth. Accordingly, we present the following hypothesis:

*H3a: A higher degree of risk taking is associated with higher growth intentions.*

*H3b: A higher degree of risk taking is associated with higher revenue growth.*

#### **2.4 Influence of growth mode on the EO–growth relationship**

The heterogeneity of growth firms that has been described in previous research may be related to the mode of growth chosen by each firm. The growth mode is a crucial strategic decision for any company. Two strategies, M&A growth and organic growth, have been discussed in the literature as the two most common growth strategies.

A firm pursues organic growth or an organic development strategy by developing its own capabilities. The organization expands its own knowledge and focuses on learning, and the knowledge obtained can be advantageous in the long run. Furthermore, an organic growth firm distributes its investments over a longer duration of time than an acquisition growth firm. As opposed to an acquisition strategy, an organic growth strategy offers a company independence because acquisition growers frequently must wait until the right opportunity for company growth. Moreover, with an acquisition strategy, compromises must be made to integrate the two organizations.

Acquisition growth involves the takeover of one firm by another. In this paper, firms that grow through mergers and acquisitions are categorized as acquisition growers. A firm that grows through acquisition has the ability to quickly diversify or enter new markets. Another strength of an acquisition strategy is that it allows firms to buy out their competitors; thus, it increases prices and reduces costs by sharing resources. Acquisition allows an organization to expand its capabilities in general.

Firms' growth strategies have previously been studied. However, there are two different perspectives on firm growth strategies in the literature: one perspective asserts that firm growth strategy mediates the relationship (Moreno and Casillas, 2008) between EO and performance, whereas another asserts that firm growth strategy is a moderating variable (Dess et al., 1997) in the relationship between EO and performance. This article adopts the second view, and the growth mode is considered a moderating variable.

## **2.5 Acquisition growth and competitive aggressiveness**

Two of the most common growth modes are organic growth and acquisition growth. An acquisition strategy is frequently pursued in an attempt to acquire new capabilities or to penetrate new geographical markets (Wiklund and Shepherd, 2009). Acquisition growth is irreversible and can therefore reduce strategic flexibility, and previous studies have shown high failure rates for acquisitions. According to Laurie et al. (2006), 65% of all acquisitions are unprofitable, possibly because of post-acquisition challenges that many companies experience in integration. Companies operating in hostile environments experience particularly extraordinary pressure because their competitive advantage may only last for a limited time. According to Dess et al. (1997), higher market performance in such environments is typically achieved through higher

competitive aggressiveness, i.e., a company's ability to outperform its competitors. Because buyouts represent the ultimate aggressive behavior, we believe that growth mode moderates the relationship between competitive aggressiveness and growth. As Ferrier (2001) argued, the unpredictability, complexity, duration and volume of the attacks on competitors are important for growth. By definition, the volume of attacks is high during buyouts. The unpredictability of attacks may vary, but in most cases, acquiring companies seek to keep their plans secret. The complexity and duration of attacks may also vary.

We believe that competitive aggressiveness will have a greater effect on revenue growth and growth intentions when the firm in question employs an acquisition growth strategy. We therefore propose the following hypothesis:

*H4a: Competitive aggressiveness will have a greater effect on growth intentions with an acquisition strategy.*

*H4b: Competitive aggressiveness will have a greater effect on revenue growth with an acquisition strategy.*

## **2.6 Organic growth and innovativeness**

Organic growth or internal development is the most common growth strategy. One of the advantages of such a strategy is that the company has the freedom to build its business. A company may also stop pursuing an innovation if the innovation no longer seems profitable. The mode of growth is expected to affect the relationship between innovativeness and growth for several reasons. Innovations are associated with high levels of uncertainty. Therefore, an internal development process might be advantageous because it is possible to adjust the project during

the development process.

There has been little empirical research on the interactions between the growth mode and both innovativeness and growth. However, organic high-growers are frequently closely linked to innovation; thus, they have greater internal R&D expenditures and must hire qualified employees (Rothaermel and Hess, 2010). Further, organic development is frequently more time consuming than other growth modes (Rothaermel and Hess, 2010). We believe that with greater resources for internal R&D, innovativeness will have a greater impact on growth. Thus, we propose the following hypothesis:

*H5a: Innovativeness will have a greater effect on growth intentions with an organic growth strategy.*

*H5b: Innovativeness will have a greater effect on revenue growth when an organic growth strategy is applied.*

## **2.7 Growth mode and risk taking**

Previous research has shown that risk-taking firms are more likely to grow than non-risk-taking firms (Hughes and Morgan, 2007). Risk-taking companies are better at exploiting opportunities because of their ability to cope with greater degrees of uncertainty and their willingness to innovate without knowing all the consequences of their actions. There are several potential reasons why the mode of growth influences the relationship between risk taking and growth.

Previous research on growth modes suggests that an organic growth strategy is less risky than an acquisition growth strategy (Rothaermel and Hess, 2010). When an organization develops internally, it is always possible to halt a process or change the organization's strategy.

Acquisition growers do not have this option and frequently become locked into their development strategies (Nazarkina, 2012). Furthermore, Nazarkina (2012) argued that most acquisition growers are capital intensive and therefore frequently require external financing. We expect risk to be an important factor in company growth and growth intentions. However, both acquisition growers and organic high-growers can benefit from taking risks. Therefore, we propose the following hypothesis:

*H6a: Risk-taking attitude/behavior is positively associated with company growth for organic growers.*

*H6b: Risk-taking attitude/behavior is positively associated with company growth for acquisition high-growers.*

### **3. Methodology**

#### **3.1 Sample and descriptive statistics**

A questionnaire was developed that consisted of three sections: innovativeness, competitive aggressiveness and risk taking. Several descriptive variables were used, including industry of operation, firm age and location. All latent variables were measured with multiple items adopted from previous studies using a seven-point Likert scale (Churchill Jr., 1979). The measurement of innovativeness, competitive aggressiveness and risk taking was adapted from Hughes and Morgan (2007) and adjusted to fit the context and local language of the population under study. Growth strategy was measured by a single-item question that asked how the companies have achieved their growth. To capture high growth, an extended revenue measure was used. In this study, high-growth companies were defined as firms that fulfilled each of the following six

criteria adapted from the gazelles concept introduced by David Birch (1987); any company that did not fulfill all the criteria was categorized as a regular company:

1. Has delivered approved accounts;
2. Has at least doubled its revenue during the past four years;
3. Earns revenue of at least one million NOK yearly;
4. Has a positive EBIT;
5. Has avoided negative growth; and
6. Is incorporated (i.e., is registered as an 'Inc.' company).

A complete list of gazelle companies was provided by the leading Norwegian business newspaper, *Dagens Næringsliv*. SMEs were randomly chosen to generate the sample. In total, 6,983 high-growth firms were identified using data from the most recent three years. We used the definition of SMEs that was developed by the EU, which defines companies with fewer than 250 employees as SMEs. The control group (non-gazelles) was randomly selected from all Norwegian SMEs.

This study was conducted using phone surveys that targeted the CEOs of firms. In total, 1,000 high-growth firms and 501 control firms completed the questionnaire. High-growth companies typically compose 2-5% of the total population of companies in a country (Sims and O'Regan, 2006). We divided the dataset into three groups: organic high-growers (814 observations), acquisition high-growers (123 observations) and non-gazelles (371 observations). Having deleted all cases that did not meet the above criteria or that included too many missing values, we

obtained a final sample that consisted of 1,308 usable observations. To test for selection bias due to the existence of non-respondents, we compared the number of employees in our sample of growth companies with the number of employees in the population of growth companies in Norway and found no significant results ( $p>0.05$ ).

Location, firm age, number of employees and resource availability were used as control variables in the analysis.

**Table 1: Descriptive statistics**

	Non-growers		Acquisition high-growers		Organic growers	
	<i>Mean</i>	<i>Std. dev.</i>	<i>Mean</i>	<i>Std. dev.</i>	<i>Mean</i>	<i>Std. dev.</i>
Number of employees	20.1	31.5	18.0	26.9	13.7	21.4
Foundation year	1982	32.7	1992	22.1	1997	14.7
Competitive agg.	4.1	1.7	4.6	1.4	4.4	1.4
Innovativeness	4.5	1.6	4.6	1.2	5.0	1.3
Risk taking	3.4	1.5	3.5	1.3	3.6	1.4
Growth intention	4.0	1.9	4.4	1.7	4.5	1.7

N =1308

### 3.2 Analysis and measurement model

Because of our use of latent variables measured with multiple items, we conducted a confirmatory factor analysis to ensure the reliability of the results. The measurement model was estimated using Stata 12.

**Table 2: Measurement model**

<i>Construct</i>	<i>Items</i>	<i>Standard Loadings</i>	<i>z-value</i>
Growth Intentions (CR = 0.75, AVE = 0.61)			
	Our firm has a goal of increasing its revenue over the next five years	.808	32.4
	Our firm has a goal of hiring new employees over the next five years	.747	30.4
Innovativeness (INN) (CR = 0.71 AVE = 0.45)			
	Our firm seeks out new ways to do things	.738	35.5
	Our firm has introduced several new products or services into the market during the last five years	.644	28.5
	Our firm is creative regarding its methods of operation	.627	27.9
Competitive Aggressiveness (CA) (CR = 0.78, AVE = 0.55)			
	We try to beat and outmaneuver the competition as best we can	.619	29.3
	We are always aware of the strengths and strategies of our competitors	.769	44.5
	We respond quickly to our competitors' initiatives	.816	48.9
Risk taking (CR = 0.76, AVE = 0.51)			
	The term 'risk taker' is considered positive among people in our firm	.658	31.0
	We use substantial resources in projects that our competitors avoid using	.722	38.2
	People in our firm are encouraged to take calculated risks with new ideas	.764	41.6

Model fit statistics:  $\chi^2 = 232.71$ ,  $p = .00$ , CFI\* = .96, TLI\* = .94, SRMR = .039, RMSEA\* = .063 [.055, .070], \* = robust indicators, AVE = average variance extracted, and CR = composite reliability.

The model fit statistics show that the measurement model adequately fits the data. The t-values of the items were all significant ( $p < 0.01$ ), and the model thus showed adequate convergent validity (Anderson and Gerbing, 1988). The RMSEA indicated acceptable model fit (Hu and Bentler, 1999). The comparative fit index (CFI) and the Tucker-Lewis index (TLI) both indicated good model fit (Hooper et al., 2008; Kendler et al., 2002). The average variance extracted (AVE) was calculated for each of the constructs; these are shown in table 2. In terms of its AVE, one construct was below the recommended level of 0.05 (Fornell and Larcker, 1981).

However, this threshold is considered to be somewhat strict, and we retained the construct because of the overall results regarding validity and reliability. Discriminant validity was tested by comparing the square root of the correlation coefficient with the AVE of the constructs; these are shown in table 2 (Fornell and Larcker, 1981). The results of this test provided evidence of the discriminant validity of the constructs. Given the acceptable model fit, composite variables were calculated using the means.

Means, standard deviations and Pearson correlation coefficients for all latent dependent and independent variables are presented in table 3.

**Table 3: Correlation matrix**

	Mean	Std	1	2	3	4	5	6	7
1. Growth intention	4.31	1.75	1						
2. Log (revenue %)	-.364	1.41	.11**	1					
3. Innovativeness	4.80	1.39	.37**	.11**	1				
4. CA	4.31	1.47	.35**	.05	.34**	1			
5. Risk	3.51	1.40	.33**	.07*	.47**	.31**	1		
6. Number of employees	16.1	25.8	.15**	-.06	.07**	.13**	.07*	1	
7. Foundation year	1992	22.9	.08**	.30**	.09**	.06*	.06*	-.20**	1
8. Access to capital resources	2.66	1.92	.12**	.04	.09**	.02	.19**	-.02	.05

\* = Correlation significant at the 0.05 level

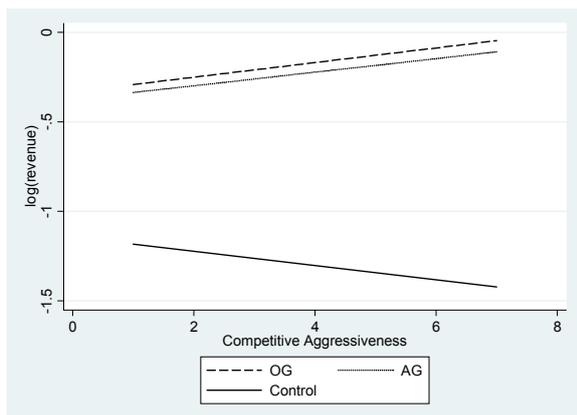
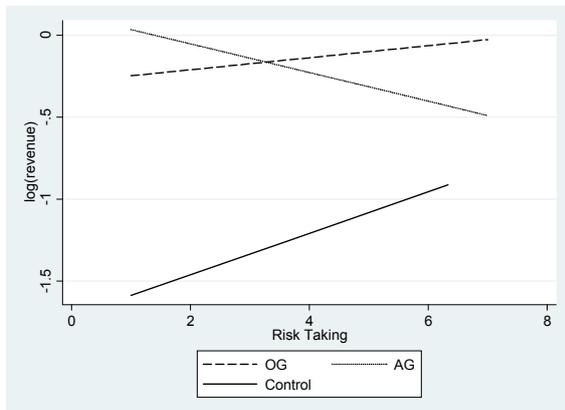
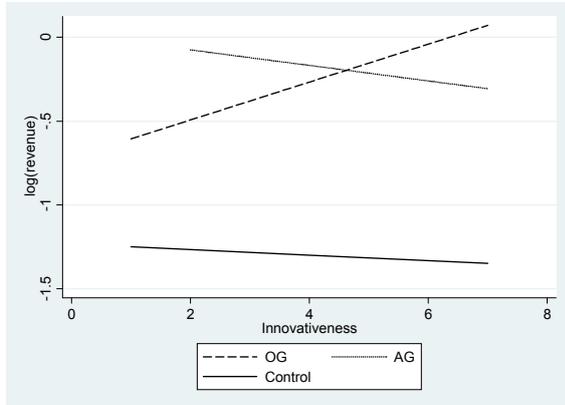
\*\* = Correlation significant at the 0.01 level

N =1308

To obtain a more in-depth understanding of the different growth modes, we compared the means of the different groups using an ANOVA and a Bonferroni comparison. With regard to innovativeness, we observed a significant difference between the organic high-growers and the non-gazelles ( $p < 0.01$ ) and between the organic high-growers and the acquisition high-growers ( $p < 0.05$ ). However, we observed no significant difference between the acquisition high-growers and the non-gazelles ( $p > 0.05$ ). In terms of competitive aggressiveness, we found a significant

difference between the organic high-growers and the non-gazelles ( $p < 0.05$ ) and between the acquisition high-growers and the non-gazelles ( $p < 0.01$ ). No significant difference was found between the organic high-growers and the acquisition high-growers ( $p > 0.05$ ). Regarding risk taking, we found no significant differences between the three groups.

## Revenue Growth



## Growth Intention

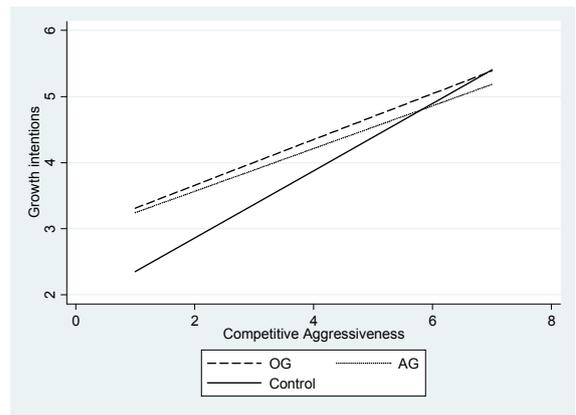
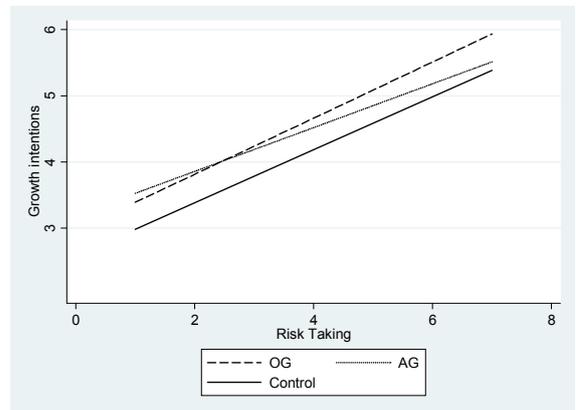
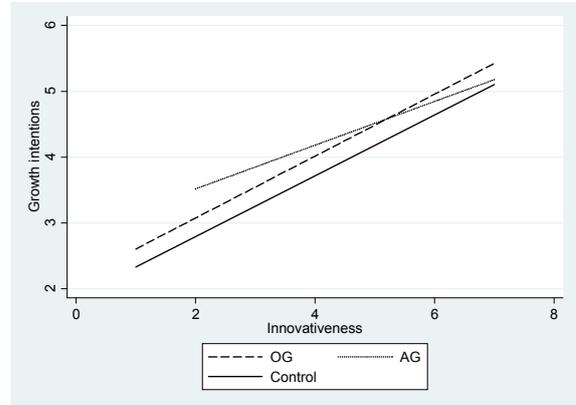


Figure 1: Plots

In figure 1, we can observe the difference between the control group and the growth groups with respect to revenue growth. There seems to be a positive relationship between innovativeness and revenue growth among organic growers. Regarding growth intentions, no difference is observed, and all lines increase. There appears to be little or no relationship between growth in different periods. All groups appear to benefit from competitive aggressiveness, risk taking and innovativeness.

#### **4. Results and discussion**

Table 4 shows the direct effects of innovativeness, risk taking and competitive aggressiveness on growth intentions and revenue growth in the full sample.

**Table 4: regression results for full sample**

	<b>Growth intention</b>		<b>Revenue growth</b>	
	<i>Standardized Coefficient</i>	<i>t-value</i>	<i>Standardized Coefficient</i>	<i>t-value</i>
<b>Control variables:</b>				
Number of employees	.01*	4.94	.00	.07
Founding year	.01*	4.13	.02*	7.13
Access to capital	.02	.67	.03	1.35
Access to labor	.14*	6.29	-.03	-1.49
<b>Location:</b>				
Capital area	Base group			
East	-.32*	-2.56	.06	.48
South	-.17	-1.02	.17	1.05
West	-.05	-.45	.17	1.40
Middle	.01	.09	.36*	2.49
North	.11	.72	.09	.58
<b>Sector:</b>				
Primary Industry	Base group			
Construction	.37	1.57	-.10	-.41
Retail	.09	.36	.06	.27
Transport	.39	1.74	.17	.73
Hotel and hospitality industry	.51	1.82	-.12	-.47
Services	.53	1.71	-.49	-1.09
Education, health and culture	.68*	3.06	.23	1.01
	.50	1.48	.31	1.07
H1: Innovativeness	.24* <sup>a</sup>	6.39	.09* <sup>b</sup>	2.47
H2: Comp. agg.	.23* <sup>a</sup>	6.55	.00 <sup>b</sup>	0.03
H3: Risk taking	.16* <sup>a</sup>	4.18	.00 <sup>b</sup>	0.03
	R <sup>2</sup> = 0.28		R <sup>2</sup> = 0.12	
	F = 33.6		F = 5.26	
	N = 1300		N = 1020	

\* = significant at the 0.05 level, a = a hypothesis, b = b hypothesis.

The model was tested using ordinary least squares regression (OLS). This regression shows that innovativeness, risk taking and competitive aggressiveness affect growth intentions (H1a, H2a, H3a:  $p < 0.05$ ). The results also show that innovativeness significantly affects revenue growth (H1b:  $p < 0.05$ ). No significant results are found for the effect of competitive aggressiveness or risk taking on revenue growth (H2b, H3b:  $p > 0.05$ ).

Table 5 shows how innovativeness, competitive aggressiveness and risk taking affect growth intentions for non-growers, acquisition high-growers and organic growers.

**Table 5: Regression results with growth intentions as the dependent variable**

	<b>Non-growers</b>		<b>Acquisition high-growers</b>		<b>Organic growers</b>	
	<i>Standardized Coefficient</i>	<i>t-value</i>	<i>Standardized Coefficient</i>	<i>t-value</i>	<i>Standardized Coefficient</i>	<i>t-value</i>
<b>Control variables:</b>						
Number of employees	.01*	5.08				
Founding year	.01*	3.15				
Access to capital	.02	.76				
Access to labor	.13*	5.89				
<b>Location:</b>						
Capital area	Base group					
East	-.32*	-2.51				
South	-.18	-1.09				
West	-.07	-.56				
Middle	-.01	-.06				
North	.10	.68				
<b>Sector:</b>						
Primary	Base group					
Industry	.37	1.49				
Construction	.08	.32				
Retail	.38	1.65				
Transport	.51	1.80				
Hotel and serving	.56	1.79				
Services	.69*	3.01				
Education, health and culture	.43	1.22				
H4a: Innovativeness	.21*	2.98	.17	1.23	.25*	5.22
H5a: Comp. agg.	.31*	5.08	.24*	1.96	.18*	4.13
H6a: Risk taking	.11	1.53	.05	.34	.21*	4.41

$R^2 = 0.29$ . \* = Significant at the 0.05 level; † = significant at the 0.1 level.

The analyses show that innovativeness significantly affects growth intentions for organic high-growers (H4a:  $p < 0.05$ ). The effect of innovativeness on growth intentions for acquisition high-growers is nonsignificant. The regression coefficient is larger for organic high-growers than for acquisition high-growers. However, this difference is not significant after we perform a Wald test ( $p > 0.05$ ). Competitive aggressiveness is found to have a positive effect among both acquisition high-growers (H5a:  $p < 0.05$ ) and organic growers. The regression coefficient is larger for acquisition high-growers, but the results are not significant when the regression coefficients are compared using the Wald test. Risk taking has a positive effect on growth for organic high-growers (H6a:  $p < 0.05$ ). However, this effect is nonsignificant for acquisition high-growers.

Table 6 shows how innovativeness, competitive aggressiveness and risk taking affect revenue growth for non-growers, acquisition high-growers and organic growers.

**Table 6: Regression results with revenue growth as the dependent variable**

	<b>Non-growers</b>		<b>Acquisition high-growers</b>		<b>Organic growers</b>	
	<i>Standardized Coefficient</i>	<i>t-value</i>	<i>Standardized Coefficient</i>	<i>t-value</i>	<i>Standardized Coefficient</i>	<i>t-value</i>
<b>Control variables:</b>						
Number of employees	.00	.70				
Founding year	.01*	5.62				
Access to capital	.03	1.58				
Access to labor	-.04*	-2.25				
<b>Location:</b>						
Capital area	Base group					
East	.04	.33				
South	.12	.79				
West	.15	1.24				
Middle	.37*	2.53				
North	.13	.84				
<b>Sector:</b>						
Primary	Base group					
Industry	-.02	-.08				
Construction	.06	.26				
Retail	.17	.77				
Transport	-.12	-.46				
Hotel and serving	-.24	-.55				
Services	.26	1.18				
Education, health and culture	.23	.79				
H4b: Innovativeness	.01	.06	.01	.12	.11*	2.61
H5b: Comp. Agg.	-.14	-1.64	.09	1.13	.03	.78
H6b: Risk Taking	.14	1.33	-.14	-1.39	-.03	-.80

$R^2 = 0.17$ . \* = Significant at the 0.05 level; † = significant at the 0.1 level.

The regression results show that innovativeness affects revenue growth for organic high-growers (H4b:  $p < 0.05$ ). For acquisition high-growers, however, innovativeness is not significantly higher than zero. The regression coefficient is also larger for organic high-growers than for acquisition high-growers, but this difference is not significant when a Wald test is performed ( $p > 0.05$ ).

Competitive aggressiveness is nonsignificant for acquisition high-growers (H5b:  $p > 0.05$ ). Risk taking is nonsignificant for both organic high-growers and acquisition high-growers (H6a, H6b:  $p > 0.05$ ).

In this study, innovativeness was found to have a positive impact on company growth and future growth intentions (H1a, H1b:  $p < 0.05$ ), which is consistent with the results of previous research that examined the direct effect of innovativeness on company growth (Calantone, R.J et al., 2002; Hughes and Morgan, 2007). However, we observed that innovativeness more strongly affects growth intentions than revenue growth, which indicates that companies that perceive themselves to be innovative have greater faith in their ability to achieve growth.

The data also show that there is a significant relationship between innovativeness and growth for organic high-growers (H5a, H5b:  $p < 0.05$ ), which indicates that innovativeness appears to be a good predictor of company growth for organic growers. Among acquisition high-growers, however, the effect of innovativeness is not significant. These findings indicate that current research that does not take the growth mode into consideration (Coad and Rao, 2008; Grundström et al., 2012) may underestimate the effect of innovativeness on growth.

Innovativeness could thus be a more important factor in organic firm growth than has previously been assumed.

The data show that there is a significant relationship between competitive aggressiveness and growth intentions (H1a:  $p < 0.05$ ). This finding indicates that aggressive companies are more interested in expanding their market shares and ensuring growth. Few researchers have empirically examined the relationship between competitive aggressiveness and growth.

However, Hughes and Morgan (2007) found a nonsignificant relationship between competitive aggressiveness and performance; similar to Hughes and Morgan (2007), we found in this study that the relationship between competitive aggressiveness and revenue growth is nonsignificant (H1b:  $p > 0.05$ ).

Competitive aggressiveness is clearly significant for both acquisition high-growers and organic high-growers (H4a: partly supported, H4b:  $p>0.05$ ). However, the beta is larger for acquisition high-growers than for organic growers. Although the difference between the betas is not significant based on the Wald test results, we can conclude that competitive aggressiveness is a good predictor of acquisition growth.

The data show that there is a significant relationship between risk taking and growth intentions (H3a:  $p<0.05$ ). However, the relationship between risk taking and revenue growth is not significant (H3b:  $p>0.05$ ). Risk taking has been the subject of many debates, and the empirical results in the literature are ambiguous. Previous research has shown that risk taking is contingent upon the environment. Firms operating in rapidly changing markets must typically take more risks. In addition, it may be assumed that risk taking is an important variable in this study because it focuses on high-growth firms. However, this study was conducted in Norway, where the social security system is well developed, salaries are typically high, and unemployment low. Therefore, the level of risk perceived by CEOs might be lower in Norway than in China, for example, where Li et al. (2008) found a strong positive influence of risk taking on growth.

## **5. Implications**

Despite suggestions to this effect in a number of studies, few empirical studies have examined the moderating effect of growth mode on the EO–growth relationship (Gilbert et al., 2006; McKelvie and Wiklund, 2010). This paper contributes to the growth literature and our understanding of EO by examining how growth mode affects the impact of EO on firm growth. Previous studies have indicated that EO has a positive impact on performance and growth. The influence of EO, however, is contingent upon the particular mode of growth. Of the 12

hypotheses examined in this research, six were fully supported, one was partially supported, and five were not supported.

As indicated above, the contribution of this paper is threefold. Most research on EO employs a one-dimensional approach (Covin and Lumpkin, 2011). We followed the recommendations of Covin and Lumpkin (2011) by examining three separate conceptual dimensions of EO and analyzing their effects on company growth. We found that the dimensions of EO do not have the same effect on the two different growth indicators that were used. We believe that approaching EO as a multidimensional construct in a configurational approach could help advance EO research.

The second contribution of this paper relates to the literature on the mode of growth. Growth mode has been investigated in research on firm growth for some time (Gilbert et al., 2006; McKelvie and Wiklund, 2010) and has been found to be important, particularly with respect to innovativeness. The effect of innovativeness is strongly significant for organic growth firms but not for acquisition growth firms. The effect of innovativeness on organic growth is strongly significant and is the opposite of its effect on acquisition growth. If we do not take growth mode into consideration, we may underestimate the importance of innovativeness for organic growth. Future research should identify different types of innovation mechanisms that influence growth.

The last contribution of this paper concerns the use of both objective and subjective measures. In examining both revenue growth from the most recent three years and future growth intentions, we can examine the connection between actual firm growth and firms' intentions to grow. Growth intentions may be the most crucial strategic element of growth, and there remain many unanswered questions regarding growth intentions. The difference between growth intentions

and actual growth may also have resulted from the use of objective instead of subjective measures.

High-growth firms have previously been studied. However, few studies have empirically examined the relationship between the dimensions of EO and firm growth (Coad, 2009; Grundström et al., 2012). In performing such a study, we have sought to better understand how high-growth companies exploit their resources and use their innovative capabilities.

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