



Niklas Kiviluoto

**REDISCOVERING
PROFITABILITY IN
ENTREPRENEURSHIP**

Evidence from Finnish High-Technology Start-Ups

Niklas Kiviluoto

Born 1985 in Turku, Finland

M. Sc. (Econ. & Bus. Adm.), 2006

Researcher, EDGE Research Group, Åbo Akademi University, 2011-
Research assistant, School of Business and Economics, Åbo Akademi
University, 2008-2011

Cover: Ted Schauman

Åbo Akademis förlag

Biskopsgatan 13, FI-20500 Åbo, Finland

Tfn +358 (0)20 786 1468

E-post: forlaget@abo.fi

<http://www.abo.fi/stiftelsen/forlag>

Distribution:

Oy Tibo-Trading Ab

PB 33, FI-21601 Pargas, Finland

Tfn +358 (0)2 454 9200

Fax +358 (0)2 454 9220

E-post: tibo@tibo.net

<http://www.tibo.net>

REDISCOVERING PROFITABILITY IN ENTREPRENEURSHIP

Rediscovering Profitability in Entrepreneurship

Evidence from Finnish High-Technology Start-Ups

Niklas Kiviluoto

ÅBO 2011

ÅBO AKADEMIS FÖRLAG - ÅBO AKADEMI UNIVERSITY PRESS

CIP Cataloguing in Publication

Kiviluoto, Niklas.

Rediscovering profitability in entrepreneurship : evidence from Finnish high-technology start-ups / Niklas Kiviluoto. – Åbo :

Åbo Akademi University Press, 2011.

Diss.: Åbo Akademi University.

ISBN 978-951-765-616-0

ISBN 978-951-765-616-0

ISBN 978-951-765-617-7 (digital)

X-Copy

Åbo 2011

Acknowledgements

Entrepreneurs are said to perceive the world through different colored lenses. Depending on the color of the lens, the world around is seen and understood in a certain way, affecting the actions that are taken (Douglas, 2009). A clear lens refers to the entrepreneur's ability to see and understand entrepreneurial opportunities. A rose lens refers to overconfidence: the entrepreneur's overestimation of his/her knowledge and abilities in successfully completing a task. A blue lens relates to the avoidance of conducting an information search due to the entrepreneur's preference to use simplified decision heuristics. A yellow lens relates to the urgency of initiating the wealth-making process rather than allocating a little more time and money to acquiring risk-reducing information. A purple-lens refers to an entrepreneur's tendency to perceive more intensely the emotional benefits associated with an entrepreneurial opportunity.

Telescopes use multiple lenses to magnify what is viewed through these lenses. The situation being observed looks larger than it really is and, moreover, seems to be much closer than it really is. This highlights the way that entrepreneurs tend to overestimate the magnitude of profits from a new venture opportunity and simultaneously underestimate the proximity of those profits (Douglas, 2009, 15).

The cover of the thesis captures this analogy: the entrepreneur viewing the world through different colored lenses. Likewise, writing a thesis requires a researcher to view the world in different ways, from different perspectives, using different colored lenses. Similarly, depending on the color of the lens, the research context reveals itself in a certain way. Sometimes a telescopic magnification is required to see and understand the smallest details, while at other times a phenomenon needs to be viewed from a distance, in order to better understand the whole.

There are a number of people, which have significantly influenced the writing process, whom I would like to acknowledge in this section. I can sincerely say that I would not be at this point, writing this section, if it was not for the support from all these people. They are the ones that have helped me to put on the right kind of lenses at the right stages of the research process.

First of all, I would like to thank my thesis supervisors, Professor Malin Brännback and Professor Alan Carsrud. Having the privilege of getting to know and working together with two such excellent supervisors is something I am truly grateful for. You two made this process feel like it was being done as part of a research team, which has had a great influence on me, and my work. Malin, I can honestly say that I would not have even started this process if it was not for you, as I was about to take a completely different direction. I am happy you encouraged me to go down this path, and thank you for continuously helping me along the way. There was not one single time when I was stuck, that I did not receive help from you. Alan, your superior

knowledge of not only academia, but also especially when it comes to the practical side of entrepreneurship, has been incredibly valuable during the entire research process. I am indebted for your encouragement and motivation, and in helping me to focus on the relevant issues and to ask the right questions; questions which were relevant not only in theory, but also and especially in practice. These, are the kind of questions, entrepreneurship research should strive to answer.

I owe sincere and earnest thanks to my opponent Professor Richard T. Harrison, and to my other pre-examiner, Professor Pasi Malinen. You two were the first two people, apart from my supervisors and me, who read the final manuscript. At the final stages of the process, your evaluations were very encouraging and gave the final incentive needed to finish the thesis.

This thesis would not have been possible without the financial support from a number of institutions. Therefore, I would like express my gratitude to the School of Business and Economics at Åbo Akademi University, the Foundation for Economic Education, Stiftelsen för Handelsutbildning i Åbo, Fabian Klingendahls fond, and Hans Bang Stiftelsen.

I would also like to thank all my fellow colleagues at the School of Business and Economics for their help and support, as well as all those fellow researchers I met at national and international seminars and conferences. I am completely certain that these networks and friendships are such that they will last far into the future.

Finally, I would like to thank those nearest and dearest to me. That is, my entire family, and all of my friends. Your sincere support, and belief in the decisions I have made, have had by far the strongest influence on me not only reaching this point, but also on my continuing forward. Thank You!

Turku 13th of October 2011

1	INTRODUCTION	1
1.1	RESEARCH BACKGROUND.....	3
1.1.1	<i>Interest in the high-growth firm</i>	3
1.1.2	<i>High-growth as success</i>	5
1.1.3	<i>Research questions</i>	5
1.2	RESEARCH CONTEXT	6
1.3	OUTLINE OF THE THESIS.....	8
2	DEVELOPMENT OF THE RESEARCH APPROACH	10
2.1	POSITIVISM, INTERPRETIVISM, AND CONSTRUCTIVISM.....	11
2.1.1	<i>Assessing research quality</i>	12
2.2	RESEARCH APPROACH	13
3	DEFINING ENTREPRENEURSHIP	16
3.1	THE DEFINITION OF ENTREPRENEURSHIP ADOPTED.....	17
3.2	ENTREPRENEURSHIP AND PROFITS	19
3.2.1	<i>Defining profits</i>	19
3.2.2	<i>The role of profits</i>	21
4	THE THEORETICAL FOUNDATIONS OF ENTREPRENEURSHIP RESEARCH	23
4.1	SCHUMPETER'S FRAME-BREAKING PERSPECTIVE.....	23
4.2	PENROSE AND THE GROWTH OF FIRMS.....	24
4.3	KIRZNER'S INCREMENTAL INNOVATION PERSPECTIVE	25
4.4	CONCLUDING REMARKS	27
5	GROWTH ENTREPRENEURSHIP	30
5.1	GROWTH AS AN OUTCOME	31
5.1.1	<i>Measuring growth at individual-level and firm-level</i>	32
5.1.2	<i>The multidimensionality of growth</i>	33
5.1.3	<i>Comparing growth measures</i>	36
5.2	THE OUTCOME OF GROWTH.....	41
5.2.1	<i>The growth and profitability nexus in theory</i>	41
5.2.2	<i>The growth and profitability nexus in practice</i>	44
5.3	THE STATE OF GROWTH ENTREPRENEURSHIP RESEARCH.....	47
5.3.1	<i>A lack of accumulated knowledge generation</i>	47
5.3.2	<i>The fragmentation of the field</i>	48
5.3.3	<i>Calls for holistic research</i>	49
5.4	LITERATURE SUMMARY	49
6	STUDY I - GROWTH AND PROFITABILITY IN ENTREPRENEURSHIP RESEARCH	51
6.1	PREVIOUS LITERATURE REVIEWS.....	52
6.2	SELECTION OF JOURNALS.....	53
6.3	SELECTION OF ARTICLES	53
6.4	OVERALL CHARACTERISTICS OF THE REVIEWED ARTICLES	56
6.5	GROWTH AND PROFITABILITY	62
6.5.1	<i>Sample characteristics</i>	66
6.5.2	<i>Performance measures</i>	67
6.5.3	<i>Growth and profitability relationship</i>	67
6.6	PERFORMANCE IN PRIVATELY-HELD HIGH-TECHNOLOGY FIRMS	68
6.7	DISCUSSION OF FINDINGS	73
7	STUDY II- GROWTH AND PROFITABILITY IN FINNISH HIGH-TECH START-UPS	77
7.1	DATA	78
7.1.1	<i>Measures of growth and profitability</i>	79
7.1.2	<i>Parametric and non-parametric statistical tests</i>	83
7.2	RESULTS II A- GROWTH AND PROFITABILITY RELATIONSHIP FOR START-UP FIRMS.....	85

7.2.1	<i>Firms founded 1995-1997</i>	85
7.2.2	<i>Firms founded 1998-2000</i>	85
7.2.3	<i>Firms founded 2001-2003</i>	86
7.2.4	<i>High-profitability versus low-profitability positions</i>	86
7.3	RESULTS II B-EXPLORATORY FINANCIAL ANALYSIS.....	87
7.3.1	<i>Relationship between performance variables</i>	87
7.3.2	<i>Performance differences between bio and IT</i>	92
7.3.3	<i>Performance differences between age-groups</i>	95
7.4	DISCUSSION OF FINDINGS	97
8	STUDY III- GROWTH AND PROFITABILITY FROM A STAKEHOLDER PERSPECTIVE..	100
8.1	GROWTH AND PROFITABILITY IN ENTREPRENEURSHIP POLICIES	100
8.2	GROWTH AND PROFITABILITY IN MEDIA	101
8.3	STAKEHOLDER VIEWS ON GROWTH AND PROFITABILITY	102
8.4	METHODOLOGICAL APPROACH	104
8.4.1	<i>Selection of respondents</i>	105
8.4.2	<i>The interview process</i>	105
8.5	FINDINGS.....	107
8.5.1	<i>Structure of findings section</i>	108
8.5.2	<i>Performance</i>	110
8.5.3	<i>Planning</i>	114
8.5.4	<i>Growth and profitability matrix</i>	116
8.5.5	<i>Pro growth arguments</i>	119
8.5.6	<i>Pro profitability arguments</i>	122
8.6	DISCUSSION OF FINDINGS	128
9	CONCLUSION AND IMPLICATIONS	133
9.1	IMPLICATIONS FOR ENTREPRENEURSHIP RESEARCH	136
9.2	IMPLICATIONS FOR ENTREPRENEURS.....	139
9.3	IMPLICATIONS FOR POLICY MAKERS	143
9.4	LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH.....	144
	REFERENCES	148
	APPENDIX I- ARTICLES USED IN LITERATURE REVIEW.....	165
	APPENDIX II- FINANCIAL MEASURES USED IN STUDY II.....	169
	APPENDIX III- TRANSLATED INTERVIEW MANUAL	174
	SVENSK SAMMANFATTNING.....	176

LIST OF TABLES AND FIGURES

TABLE 1: VALIDITY IN THE THREE EPISTEMOLOGICAL PARADIGMS	12
TABLE 2: ENTREPRENEURSHIP, INNOVATION, PROFITS AND GROWTH.....	29
TABLE 3: GROWTH INDICATORS IN EARLIER STUDIES.....	35
TABLE 4: CONCURRENT VALIDITIES BETWEEN PERFORMANCE MEASURES IN WEINZIMMER ET AL (1998).....	38
TABLE 5: CONCURRENT VALIDITIES BETWEEN PERFORMANCE MEASURES IN DELMAR (2006).....	39
TABLE 6: CONCURRENT VALIDITIES BETWEEN PERFORMANCE MEASURES IN ACHTENAGEN ET AL (2010).....	40
TABLE 7: TRANSITION PROBABILITIES FOR FINNISH LIFE-SCIENCE FIRMS (SE IN PARENTHESIS).....	46
TABLE 8: EARLIER LITERATURE REVIEWS ON GROWTH AND PERFORMANCE	52
TABLE 9: ARTICLE DISTRIBUTION BETWEEN JOURNALS	56
TABLE 10: INDUSTRIES STUDIED	57
TABLE 11: NUMBER OF DEPENDENT VARIABLES USED.....	57
TABLE 12: DEPENDENT VARIABLES USED.....	58
TABLE 13: NUMBER OF INDEPENDENT VARIABLES	58

TABLE 14: INDEPENDENT VARIABLES.....	59
TABLE 15: NUMBER OF CONTROL VARIABLES.....	59
TABLE 16: CONTROL VARIABLES.....	60
TABLE 17: SUBJECTIVE AND OBJECTIVE MEASURES.....	60
TABLE 18: PERFORMANCE MEASURES.....	60
TABLE 19: GROWTH MEASURES.....	61
TABLE 20: PERFORMANCE MEASURES FOR SINGLE DEPENDENT VARIABLES.....	62
TABLE 21: ARTICLES WITH GROWTH AND PROFITABILITY MEASURES.....	62
TABLE 22: GROWTH AND PROFITABILITY AS A DEPENDENT VARIABLE (N: 33).....	65
TABLE 23: ARTICLES ON HIGH-TECHNOLOGY INDUSTRIES (N: 22).....	71
TABLE 24: INITIAL SAMPLE IN STUDY II.....	78
TABLE 25: 2006-2008 SALES GROWTH BETWEEN AGE GROUPS.....	80
TABLE 26: 2006-2008 EBIT RATIOS BETWEEN AGE GROUPS.....	81
TABLE 27: 2006-2008 SALES GROWTH BETWEEN INDUSTRIES.....	82
TABLE 28: 2006-2008 EBIT RATIO BETWEEN INDUSTRIES.....	83
TABLE 29: NON-PARAMETRIC TESTS USED.....	84
TABLE 30: TRANSITION PROBABILITIES OF FIRMS FOUNDED 1995-1997.....	85
TABLE 31: TRANSITION PROBABILITIES OF FIRMS FOUNDED 1998-2000.....	85
TABLE 32: TRANSITION PROBABILITIES OF FIRMS FOUNDED 2001-2003.....	86
TABLE 33: CORRELATIONS BETWEEN PERFORMANCE VARIABLES (3-YEAR AVERAGE).....	88
TABLE 34: COEFFICIENTS OF DETERMINATION BETWEEN PERFORMANCE VARIABLES (3-YEAR AVERAGE).....	89
TABLE 35: CORRELATIONS BETWEEN RELATIVE SALES GROWTH AND OTHER PERFORMANCE VARIABLES (3-YEAR AVERAGE).....	90
TABLE 36: COEFFICIENTS OF DETERMINATION BETWEEN SALES GROWTH AND OTHER PERFORMANCE VARIABLES (3-YEAR AVERAGE).....	91
TABLE 37: MANN-WHITNEY U TEST OF RATIOS AND RELATIVE ANNUAL PERFORMANCE MEASURES BETWEEN INDUSTRIES.....	93
TABLE 38: MANN-WHITNEY U TEST OF ABSOLUTE ANNUAL PERFORMANCE MEASURES (€000) BETWEEN INDUSTRIES.....	94
TABLE 39: MANN-WHITNEY U TEST OF ANNUAL PERFORMANCE MEASURES 2006-2008 BETWEEN INDUSTRIES.....	94
TABLE 40: PERFORMANCE DIFFERENCES BETWEEN AGE GROUPS (3-YEAR AVERAGE).....	96
TABLE 41: INTERVIEW TIME, DURATION, AND LOCATION.....	107
TABLE 42: RESPONDENT BACKGROUNDS.....	110
FIGURE 1: CITATIONS ON PENROSE'S THEORY OF THE GROWTH OF THE FIRM 1959-2010 (N = 8978).....	30
FIGURE 2: GROWTH AND PROFITABILITY MATRIX (GPM).....	45
FIGURE 3: HARZING PUBLISH OR PERISH DATABASE.....	54
FIGURE 4: ANNUAL DISTRIBUTION OF ARTICLES.....	56
FIGURE 5: STAKEHOLDERS INFLUENCING THE FIRM.....	104
FIGURE 6: PRO GROWTH ARGUMENTS.....	119
FIGURE 7: PRO PROFITABILITY ARGUMENTS.....	123

LIST OF ABBREVIATIONS

AMJ	Academy of Management Journal
ASQ	Administrative Science Quarterly
ASR	American Sociological Review
Bio	Biotechnology firms
EBIT	EBIT-ratio (Earnings before interest and taxes/annual sales)
EBIT-DA	Earnings-before interest, taxes, depreciation, and amortization
ERD	Entrepreneurship and Regional Development
ETP	Entrepreneurship: Theory & Practice
EU	European Union
FER	Frontiers of Entrepreneurship research
FMA	First-mover-advantage
FMEE	Finnish Ministry of Employment and the Economy
FMTI	Finnish Ministry of Trade and Industry
GPM	Growth and profitability matrix
ISBJ	International Small Business Journal
IPO	Initial public offering
IT	Information Technology
JBV	Journal of Business Venturing
JIBS	Journal of International Business Studies
JOM	Journal of Management
JOMS	Journal of Management Studies
JSBM	Journal of Small Business Management
OS	Organization Studies
OSC	Organization Science
M	Mean
Mdn	Median
ROA	Return on assets
ROC	Return on capital
ROE	Return on equity
ROI	Return on investment
ROS	Return on sales
RP	Research Policy journal
RS	Regional Studies journal
SBE	Small Business Economics
SME	Small and medium-sized enterprise
SMJ	Strategic Management Journal
TM	Trimmed mean
VC	Venture capitalist

1 INTRODUCTION

The aim of the thesis is to challenge the current growth and profitability nexus in entrepreneurship research, in entrepreneurship practice, and from an entrepreneurship stakeholder perspective. Meeting the aim is highly important as the current growth and profitability nexus has become distorted to a point where profits have been replaced by growth. This distortion is critical, as profit is quite an obvious element in all stated contexts: in entrepreneurship research, in entrepreneurship practice, and from an entrepreneurship stakeholder perspective (Schumpeter, 1934; Penrose, 1959; Kirzner, 1973; Drucker, 1982; Venkataraman, 1997; Gadiesh & Gilbert, 1998; Kim & Mauborgne, 2000; Churchill & Mullins, 2001; Drucker, 2001; Ireland et al, 2001; Christensen & Raynor, 2003; Qian & Li, 2003; Gilbert et al, 2006; Raisch, 2008; Davidsson et al, 2009; Steffens et al, 2009). The current widespread norm seems to be that growth is explicitly preferred over profits. This thesis challenges that assumption by bringing profitability back into the equation and thereby rediscovering profitability in entrepreneurship. Growth and profitability are not the same. Nor do they give equivalent representation of a firm's success. Profitability is the only real measure of a firm's success, not growth.

Entrepreneurs operate in an environment where various stakeholders have an influence on the firm (Cole, 1959; Gartner, 1985; Frooman, 1999; Aldrich & Martinez, 2001; Davidsson, 2005; Carsrud & Brännback, 2007; Brännback & Carsrud, 2009; Levie & Lichtenstein, 2010). Understanding the entrepreneur requires an understanding of the surrounding environment. In this environment, the growth and profitability nexus has become distorted. Growth and high-growth have been the focus of entrepreneurship for the past four decades (Birch, 1987; Capon et al, 1990; Weinzimmer et al, 1998; Delmar, et al, 2003; Davidsson & Delmar, 2006; Shepherd & Wiklund, 2009; McKelvie & Wiklund, 2010). High-growth has become something that researchers focus on, policy makers try to foster, investors' value, and entrepreneurs seem to pursue (Tilles, 1963; Gartner, 1997; Gadiesh & Gilbert, 1998; Christensen & Raynor, 2003; Nicholls-Nixon, 2005; Autio et al, 2007; Davidsson et al, 2009; Murray et al, 2009; Brännback et al, 2010; Haltiwanger et al, 2010; Kiviluoto et al, 2010).

Considering the breadth of the growth and profitability distortion, it is highly important to challenge it and bring profitability back into entrepreneurship. The current widely accepted norm seems to be that high-growth will eventually translate into high profitability (Davidsson et al, 2009; Steffens et al, 2009). Thus, high-growth is found worth pursuing. Contradicting this norm, recent firm-level studies confirm that instead of unprofitable high-growth, profitability is the precursor for subsequent profitable growth (Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009).

Considering the phenomenon from an individual level, entrepreneurs themselves seem to have a distorted view of growth and profitability. This is characterized by a

need to reach high-growth despite the risks (Tilles, 1963; Gartner, 1997; Gadiesh & Gilbert, 1998; Brännback et al, 2010; see chapter eight). Tilles (1963) already identified this pursuit of growth despite the risks:

There is, in the United States, a business philosophy which reflects the frontier heritage of the country. It is one which places a high value on growth, in physical terms. The manager whose corporate sales are not increasing, the number of whose subordinates is not growing, whose plants are not expanding, feels that he is not successful. But there is a dangerous trap in this kind of thinking. More of the same is not necessarily progress (Tilles, 1963, 113).

Brännback et al (2010) recognize similar characteristics in a recent study among Finnish high-technology entrepreneurs. The authors find that start-ups have a growth imperative, characterized by a requirement to grow without consideration for profitability. These firms do indeed manage to grow in terms of sales, but their profitability levels remain low. The older firms that do manage to survive seemingly learn from their mistakes, and, as a result, become increasingly more profitability oriented. However, successful changes in the business model may be very difficult, or even impossible to achieve once operations are up and running. Consequently, it is of great importance to adopt the right business model and focus on the right factors, in terms of profit and growth, from the very beginning (Drucker, 1982; Davidsson et al, 2009; Brännback et al, 2009; Steffens et al, 2009).

Looking at the phenomenon from a theoretical perspective, the same distortion is evident. The major theorists in the field, Schumpeter, Kirzner, and Penrose, were all primarily concerned with profits:

Furthermore, it is this entrepreneurs' profit which is the primary source of industrial fortunes, the history of every one of which consists of, or leads back to, successful acts of innovation (Schumpeter, 1928, 380).

The assumption on which this study is based is simply that the growth of firms can best be explained if we can assume that investment decisions are guided by opportunities to make money; in other words, that firms are in search of profits (Penrose, 1959, 27).

In my own exposition we have seen that the phenomenon of profits is inseparable from the very possibility of entrepreneurship in general. But my concern has been with entrepreneurship as the prime moving force in the entrepreneurial process. I am concerned with profit because the notion of entrepreneurship is inseparable from the opportunity of profit (Kirzner, 1973, 76).

Despite the profit-focus of these early theories, today a strong pro-growth bias is evident in entrepreneurship research (Davidsson et al, 2007; Davidsson et al, 2009; Shepherd & Wiklund, 2009; Kiviluoto et al, 2011). During the last four decades, a notable increase in growth entrepreneurship has been in evidence, as can be seen by observing the number of references to Penrose (1959) *The theory of the growth of the*

firm. In 1990, the book was on average cited 0.09 times a day, while the number of daily citations in 2010 surpassed 2.5. This is evidence of a rapidly increasing interest towards firm growth. At the same time, research interest in profitability is very rare (Kiviluoto et al, 2011; see chapter six).

Amidst this focus on growth, some concern can be evidenced. After two decades of increasing interest towards the high-growth phenomenon, it might be assumed that research and practice would have advanced and that accumulated knowledge would have been created (Kuhn, 1970). However, the growth entrepreneurship field has instead been criticized for becoming stagnated, characterized by inconclusive research and a slow development of theory (Achtenagen et al, 2010; Leitch, et al, 2010a; McKelvie & Wiklund, 2010). Thus, calls for novel approaches to entrepreneurship research have been made (Carson & Coviello, 1996; Gartner & Birley, 2002; Cope, 2005; Leitch et al, 2010b). This thesis aims to answer this call, and takes a novel approach to the study of growth entrepreneurship. Before proceeding, the first question to be considered is how this situation has arisen, where growth and high-growth have replaced profitability on the center stage.

1.1 Research background

Based on the discussion above it can be argued that the growth and profitability relationship is widely distorted. This thesis suggests that there is one driver of the present pro-growth bias, which has led to the distortion: the myth of growth.

Stories, tales, and myths have existed as long as humans have been able to communicate (Campbell, 1949). However, they are not something that has only existed in the past, but also exist in modern society. Numerous researchers have noted myths and assumptions affecting decision-making (Drucker, 1982; Gibb, 2000; Shane, 2008, 2009; Levie et al, 2011). This thesis suggests that growth is one such myth. Factors that are argued to have contributed to the existence of such a myth are (I) the strong interest expressed in high-growth firms and (II) the supposition that a firm's growth per se is equivalent to a firm's success.

1.1.1 Interest in the high-growth firm

The interest in high-growth has been strongly influenced by research originally published by Birch (1987); a view also held by Haltiwanger et al (2010) and Neumark et al (2010). Birch (1987) showed that it was a small proportion of start-up firms, which created the most net new jobs. *These were the most rapidly growing ones in his sample* (see also Carter et al, 1994; Reynolds, 1997; Davidsson & Delmar, 2006; Stangler & Litan, 2009; Haltiwanger et al, 2010). This was contradictory to what was then considered conventional wisdom. It was believed, at that time, that large and established companies created the majority of new jobs (Lucas, 1978). Haltiwanger et al (2010) illustrated this development well:

Statements that small businesses create most net new jobs are ubiquitous by policymakers. A common claim by policymakers is that small businesses create 2/3 or more of net new jobs. Every President since President Reagan has included such statements in major addresses (often in the State of the Union addresses to Congress) and many other leaders in the U.S. House and Senate have made similar remarks (Haltiwanger et al, 2010, 1).

There is general agreement among academia and in public policy on three points about the role high-growth firms have achieved (Davidsson & Delmar, 2006, 157):

1. A small group of high-growth firms have a key role in total employment creation.
2. A dramatic increase of interest in these firms has increased during the last few years
3. Current knowledge about their economic contributions and management practices are limited and insufficient.

Recently, the role of small high-growth firms as job creators has been questioned (Biosca, 2010; Haltiwanger et al, 2010; Neumark et al, 2010). In addition, large geographical differences in growth measured in employees have been identified: both between Europe and US, as well as between the European countries (Biosca, 2010). This suggests that context may have a significant influence.

Neumark et al (2010), while supporting Birch's (1987) findings, found the effect of small high-growth firms considerably less significant. Haltiwanger et al (2010) argue that results emphasizing the critical role of small high-growth firms are often due to measurement error, or misinterpretation caused by analysis conducted on inadequate data. Using a novel dataset by the US Census Bureau's Business Dynamic Statistics, including all firms and establishments in the US non-farm business sector for 1976 to 2005, the authors presents contrary results. This database allows the monitoring of *both the firm's size and age*. Haltiwanger et al (2010) finds no relationship between employment net growth and firm size from 1992-2005. Start-ups (age zero) and young firms (one to ten years old), are job creators, but at the same time job destructors. On average, 40% of the jobs created by start-ups do not exist five years later (see also Shane, 2009 for similar suggestions).

High-growth is an extremely heterogeneous phenomenon (Delmar et al, 2003; Pukkinen et al, 2005; Chan et al, 2006; Biosca, 2010). A lot of confusion surrounds the very definition of growth and high-growth (Gibb, 2000). Birch (1987) for example, studied a specific dimension of growth, employment, not profit. From a policy makers perspective Birch's (1987) perspective seems compelling. Employment growth is always of high interest to policy makers (Autio et al, 2007) and often, also to public investors (see chapter eight). On the contrary, high employment growth may be the last thing an entrepreneur plans (Autio, 2007; Achtenagen et al, 2010), or the venture capitalist wants to see (see chapter eight).

1.1.2 High-growth as success

Despite the various ways of conceptualizing high-growth, *high-growth is universally portrayed as evidence of business success* (Birch, 1987; Carter et al, 1994; Reynolds, 1997; Autio et al, 2007; Davidsson & Delmar, 2006; Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009; Haltiwanger et al, 2010; Kiviluoto et al, 2010). The way growth is commonly portrayed is illustrated well in this letter from a consultancy firm written, by the chairman, to their customers:

Dear business leader,

Growth is success. Fast-growing businesses are more fun to work for, attract more investors, have the best-rated CEOs, and get the most favorable media coverage (Frigstad, 2011, Frost & Sullivan).

However, high-growth cannot be universally seen as evidence of business success. High-growth is rarely the prerequisite of high profitability (Markman & Gartner, 2002; Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009). In addition, high-growth is multidimensional and research has found difficulty in conceptualizing and measuring it (Venkataraman & Ramanujam, 1986; Brush & VanderWerf, 1992; Weinzimmer et al, 1998; Delmar, 2006; Shepherd & Wiklund, 2009; Achtenagen et al, 2010). The difficulties of conceptualizing performance are emphasized among privately-held high-technology firms (Birley & Westhead, 1990; Bloodgood, 1996; Bantel, 1998; Robinson, 1998; Zahra, 2002; Gilbert et al, 2006; Kiviluoto et al, 2011). For example, growth in employment, sales, or profits, all measure different dimensions of growth, giving different indications of a firm's performance. This encourages the search for explanations behind the idea of high-growth being evidence of business success.

1.1.3 Research questions

In this thesis, three separate studies are used to explore and examine facts of the current growth and profitability nexus within the entrepreneurship domain. Epistemologically the different sections rely on varying foundations of the role and meaning of knowledge, but as a whole the thesis is influenced by a positivistic view, and focuses on the examination of facts (Smircich, 1983; Allard-Poesi & Maréchal, 2001) through a focus on *what-*, *how*-, and *why*- questions (Whetten, 1989).

Based on the falsification idea by Popper (1959), this thesis attempts to rediscover profitability in entrepreneurship. Profitability is rediscovered by challenging the current growth and profitability nexus. While this is not falsification in its strictest form, it still *challenges current views* as advocated by Popper (1959). Popper (1959) suggests that something can be falsified by offering a justified alternative to the current view of knowledge. Therefore, in this thesis an alternative to the current prevailing norm of growth is justified (Popper, 1959) –*profits instead of growth*. This thesis argues that such a clear-cut replacement should be made. Following a

positivist view on knowledge, it shows why only profits should be placed center stage (Smircich, 1983; Allard-Poesi & Maréchal, 2001).

As already mentioned, a number of stakeholders have an interest in the growth and profitability of the firm (Donaldson & Preston, 1995; Frooman, 1999; Christensen & Raynor, 2003; Gilbert et al, 2006). Growth and profitability are multidimensional constructs, and hence have different meaning for different stakeholders. Understanding these various perspectives is essential in order to fully understanding the growth and profitability nexus. Subsequently, the thesis aims to answer the following three research questions:

- 1) Why is it justified to replace growth with profits in entrepreneurship research?
- 2) Why is it justified to replace growth with profits in entrepreneurship practice?
- 3) Why is it justified to replace growth with profits from an entrepreneurship stakeholder perspective?

1.2 Research context

As discussed above, the growth and profitability distortion is widespread within the domain of entrepreneurship. For a further exploration of this phenomenon, the empirical part of the thesis focuses on a specific research context: high-technology start-ups.

High-technology

Not all fields and industries are traditionally associated with high-growth. The field that for a long time has been characterized by high-hopes and high-expectations is that of high-technology (Cooper, 1986; Maidique, 1986; Qian & Li, 2003). Public policies have been set specifically to encourage entrepreneurial activities in high-technology related industries in the hope of future prosperity (Cooper, 1986; Berry, 1998; Almus & Nerlinger, 1999; Brännback & Carsrud, 2008).

Two specific high technology industries have been chosen, that of information technology and biotechnology (henceforth IT and bio). The decision to focus on bio is because of the fact that this thesis originated from an earlier study (Brännback et al, 2009). The decision to also include IT is depends on that the two are often seen as each other's opposites when it comes to high-technology. It is argued that the two do not follow similar business logics (Kiviluoto et al, 2010). Therefore, in order to increase the validity of the thesis, both bio and IT are included. The role of the IT industry is becoming increasingly important to the Finnish economy (Deloitte, 2009). In addition, over the past decades, the IT industry has become a major growth industry (Harrison et al, 2004), hence creating a suitable context for studying growth.

Start-ups

Studies are rarely conducted among privately-held firms. Studies on start-ups are also rare. Even more infrequent are studies considering the performance of privately-held start-ups. Globally, public policies are specifically set to encourage high-growth in privately-held start-ups (Autio et al, 2007). Despite the disproportionate focus on high-growth firms both in academia and public policy, little is known about their actual economic performance and the phenomena overall (Davidsson & Delmar, 2006). Even in entrepreneurship journals, a large share of published research is conducted on large and publicly-traded firms (see chapter 6.6). Therefore, this thesis focuses on privately-held start-up firms, operating in the bio and IT industries.

Profitable growth

In this thesis, the growth and profitability nexus is studied at firm level, with a specific objective encouraging the generation of *economically sustainable, profitably growing firms*. Both growth and profitability are inseparable for wealth creation and evidence of a firm's success:

Continuous, profitable growth is a prerequisite to a firm's ability to generate wealth across time and events. Successful growth is achieved by firms that are growing faster than the majority of those competing in their industry in terms of *both sales and profits [italics added]* (Ireland et al, 2001, 49).

Two specific issues closely related to the discussion of growth, are those of growth type and firm value. The two most commonly measured growth types are sales and employment. In this thesis, firm growth only refers to sales growth. However, employment growth is also mentioned and discussed on several occasions. This is done for the specific purpose of showing the multidimensionality of the phenomenon. The different types of growth are most commonly only referred to as *growth*, regardless of the fact that they propose conflicting behavior in the firm. Such an oversimplification of a complex phenomenon may contribute to fragmentation, where assumptions start to replace knowledge (Gibb, 2000). Therefore, even if the focus of this thesis lies in sales growth, it is not discussed in isolation from other types of growth.

The second issue is that of the firm's value. In order to increase a firm's valuation, a pursuit for unprofitable high-growth may be a strategic decision (Markman & Gartner, 2002; Ramezani et al, 2002; Christensen & Raynor, 2003; see chapter eight). This strategy is often based on meeting the expectations of the stakeholders and those with a vested interest in the firm, usually its shareholders. The notion behind this strategy is that the value of the firm is created not by being based the real value of the firm, but on the discounted expected value. This type of valuation is characteristic of publicly-traded firms, but the same logic also exists among privately-held firms.

An unprofitable high-growth strategy may, for example, be a strategy for a privately-held startup to raise finances or as part of the firm's exit strategy. Such a strategy often creates a growth imperative for the firm, where continuously transcending

shareholder's growth expectations is the only way of satisfying shareholders (see Christensen & Raynor (2003) for a thorough discussion on the topic). In such an environment, ever-increasing growth becomes the norm, one that the entrepreneur does his best to adhere to. It is argued here, that unprofitable high-growth strategies are concerned with maximizing short-term goals, rather than with the creation of economically sustainable, profitably growing firms. Therefore, they lie outside the scope of this thesis.

1.3 Outline of the thesis

This introductory chapter has laid the foundations of the thesis. First, it demonstrated the breadth of the growth and profitability distortion. Then it proposed a contributor to this wide distortion, the myth of growth. The myth of growth was suggested to have spread through a strong interest in the high-growth firm, with the supposition that high-growth is equivalent to success. Finally, the research context was presented.

The thesis continues in **chapter two** with the presentations of the research methodology. This thesis relies on multiple methods examining the growth and profitability nexus, each looking at the phenomenon from a different angle. The methodology is presented and its use justified.

Chapter three, focuses on defining entrepreneurship, and looks at how the field has developed during the last few decades. The definition of entrepreneurship used in this thesis, will be presented and the role of profits in entrepreneurship discussed.

Chapter four presents the theoretical foundations of entrepreneurship. The focus is placed on examining four central concepts: entrepreneurship, innovation, profit, and growth. These concepts are examined through the work of those who have contributed significantly to the theoretical foundation of the field: Schumpeter, Penrose, and Kirzner.

In **chapter five**, the focus lies in the specific area of this thesis, growth entrepreneurship. The chapter focuses on presenting the different streams of growth research. It sheds light on the complexity of the field, and the issues to be considered when researching growth entrepreneurship.

Chapters' six to eight are the empirical part of the thesis. Each chapter presents a study focusing on the growth and profitability nexus from a distinct viewpoint: entrepreneurship research (**chapter six**), entrepreneurship practice (**chapter seven**), and entrepreneurship stakeholder perspectives (**chapter eight**). Based on the findings, a justification for the replacement of growth with profits is presented at the end of each chapter.

Finally, **chapter nine** focuses on the implications of the research for entrepreneurship research, practice, and policy. It concludes with a discussion of limitations and suggestions for future research.

2 DEVELOPMENT OF THE RESEARCH APPROACH

Research within the social sciences is traditionally seen to consist of two different research paradigms: qualitative and quantitative. Qualitative and quantitative research is traditionally seen to differ mainly at an epistemological level (Kuhn, 1970; Bryman, 1984; Miles & Huberman, 1994). The term paradigm referred to by Kuhn (1970) is a fairly complex entity, found to refer to more than 22 different meanings (Gummesson, 1988). For example, Gummesson (1988) defines it in the following way:

A paradigm consists of the researchers perceptions of what one should be doing and how one should be doing it. In other words, what are the interesting research problems and which methodological approach can be used to tackle them (Gummesson, 1988, 20)?

This definition is similar to that which Kuhn (1970) regards as normal science and the existence of rules within it. According to Kuhn (1970), most science is something that can be called normal. It is the sort of science, and scientific discovery, that plays by the rules and guidelines commonly accepted in that scientific community.

Kuhn (1970) uses the metaphor of a puzzle and a puzzle-solver to exemplify what he means by normal science and the typical scientist as an actor in it. When starting to build a puzzle it is necessary to have a clear aim of what the puzzle will eventually be like. In order to reach that goal, the puzzle-solver needs to follow a number of rules. For example, all the pieces need to be the right way up, and they all need to fit into each other without using force until the entire picture is formed and the puzzle is solved. This, according to Kuhn (1970) characterizes a scientist practicing normal science, i.e. playing by the rules of the game in order to reach a pre-determined goal.

Scientists and researchers practicing normal science do not attempt to introduce new sorts of phenomenon or to invent new theories, but merely to explore the limits of their research context (Kuhn, 1970). The resistance to new scientific discovery, and hence moving outside the borders of that scientific field, may be due to the motivations of the scientist him/herself or due to the resistance from that scientific community (Barber, 1961).

However, occasionally, there are scientists who do not play by the rules of the game (Kuhn, 1970). Instead of exploring the limits of their research context, they attempt to view a common phenomenon in a completely novel way. Continuing the puzzle-metaphor used above, they mix the pieces of different puzzles. Instead of having a pre-determined outcome and rules to follow, they attempt to mix them without considering the boundaries of one puzzle. By doing so, they change the rules of the game, and attempt to solve something, no one else has solved before. The process of doing so does not necessarily lead directly to a solution. Finding a solution is not even the purpose of the process, but when the conventions of the game are changed, new ways of playing are also created. These new ways may help to view the original game in different ways. This process, which is equally destructive and constructive

to the original game, may eventually lead to a scientific revolution and the creation of a new paradigm. This is the process by which science develops (Kuhn, 1970).

2.1 Positivism, interpretivism, and constructivism

On an epistemological level, three distinct paradigms exist: positivism, interpretivism, and constructivism. In these three, the form of reality and the role and purpose of knowledge in has different meanings (Girod-Séville & Perret, 2001). In other words, they all follow different kinds of rules (Kuhn, 1970) or have different epistemic cultures (Knorr-Cetina, 1999). These create the boundaries for a research process, and help the researcher determine what is acceptable and what is not.

The positivist view on reality and knowledge differs from the interpretative and constructive views (Girod-Séville & Perret, 2001). The positivist view is objective in relation to the more subjective views of interpretative and constructive thinkers. Positivist, also called empiricist, refer to the same approach that others call quantitative. Similarly, interpretative, constructive, naturalistic, and ethnographic all refer to the same approach others call qualitative (Bryman, 1984; Royer & Zarlowski, 2001; Allard-Poesi & Maréchal, 2001).

The positivist view on reality and knowledge is that they are independent; the object and subject are independent from each other. This means that the positivist view suggests that reality exists in itself and is not dependent on the scientist's knowledge, belief, or disposition (Girod-Séville & Perret, 2001). Reality exists out there, and the researcher's role is to describe and explain that reality. Cause and effect are created by existing universal laws (Allard-Poesi & Maréchal, 2001). Therefore, the knowledge that is created, according to the positivist view, is objective and not context-specific. *"The positivist vision of reality leans towards explanatory research, to answer the question 'for what reasons'...tries to reconstruct cause and effect"* (Girod-Séville & Perret, 2001, 19). Other common research questions following a positivist approach are suggested by Smircich (1983): *"what do organizations accomplish and how may they accomplish it more efficiently"* (Smircich, 1983, 353). Therefore, positivist research, to a large extent, is focused on the examination of facts (Allard-Poesi & Maréchal, 2001).

The interpretative and constructive knowledge views have a more subjective view on reality. According to these paradigms, reality and knowledge are never independent of the mind: the object-subject relationship being dependent on each other. The researcher constructs the reality and knowledge not with the aim of predicting and controlling it, but in order to understand¹ it better (Winch, 1958; Girod-Séville & Perret, 2001). In this view, nothing is determined beforehand as it is through the research process that the researcher creates knowledge. The knowledge created is

¹ The word understand is derived from the word *verstehen* introduced by Max Weber, and although not capturing its full meaning, it is found to be the best equivalent of the word (Winch, 1958).

therefore subjective and context-specific, with the research being conducted in its natural setting (Lincoln & Guba, 1985 in Girod-Séville & Perret, 2001).

Interpretative research aims, therefore, at understanding and interpreting actors; including their thoughts, intentions, motivations, expectations, reasoning's, motives, and beliefs. Through this process, knowledge is created, therefore making knowledge an outcome of the research process. The interpretative and constructive views differ in this regard. The constructive view generates knowledge along the research process, which continuously draws an increasingly clear picture of perceived reality, a process through which knowledge is constructed. In comparison, the interpretative view primarily attempts to reveal and understand reality (Girod-Séville & Perret, 2001).

2.1.1 Assessing research quality

Despite the epistemological paradigm the researcher follows, they all have different ways of assessing and evaluating the quality of knowledge (Girod-Séville, 2001). Table 1 below summarizes the major components of how validity is understood in the three epistemological paradigms.

	Epistemological view	
Positivism	Interpretivism	Constructivism
Verification The truth of a statement assessed empirically.	Credibility The establishment of confidence in the truth as understood by the researcher	Adequation When knowledge fits a given situation
Degree of confirmation No theory can be fully verified. The degree of confirmation refers to the probability of it being true.	Transferability How likely is it that the findings are similar in other context or other subjects studied?	Teachability The idea that knowledge should be possible to teach forward, despite how it was constructed.
Refutation (or Falsification) The idea of Popper (1959) that no theory can ever be verified, but all theories must be falsifiable i.e. shown that they can be false.	Dependability How likely is it that the findings would repeat themselves if an equivalent study was made?	
Logical consistency Refers to the respect of the deductive logic, i.e. all propositions must be logically deducible.	Confirmability How true are the findings, and how much they are affected by subject-object biases	

Table 1: Validity in the three epistemological paradigms

Source: Girod-Séville (2001), Lincoln and Cuba (1985) in Girod-Séville (2001).

As table 1 above shows, validity is understood and conceptualized in different ways within the three paradigms. Despite the varying terminology used within each paradigm, they all fundamentally serve a similar purpose i.e. they validate the findings and hence safeguard them against criticism and questioning within that scientific paradigm. Positivists are concerned with the consistency of the facts while interpretativists are concerned with the consistency of the experience, and constructivists with the usefulness and suitability of the knowledge (Allard-Poesi & Maréchal, 2001).

2.2 Research approach

The three epistemological paradigms have different views on knowledge and reality, which therefore affects the purpose and the aim of the research (Allard-Poesi & Maréchal, 2001; Girod-Séville & Perret, 2001). The positivist research approach is linear and starts with the identification of inconsistencies or research gaps. Then it sets out to formulate a research problem in order to describe the structure of the underlying reality. The interpretative research approach is based on the object-subject interaction, and is therefore a more non-linear research process, aiming at understanding the social constructs of the entire phenomenon. Finally, the constructivist research approach is characterized as a gradual process of first designing a goal-oriented project, because of the need to alter the current situation, and then meeting that goal (Allard-Poesi & Maréchal, 2001)

Often the epistemological foundations of the researcher are found to greatly affect the development of a research approach and the method of conducting the research. Although the epistemological views give an indication of the research process, there is nothing that hinders the integration of views or conducting research of one paradigm despite being influenced by the logic of another (Grenier & Josserand, 2001; Bryman, 2007). This is a point clearly stated by Miles and Huberman (1984): *"we content that researchers should pursue their work, be open to an ecumenical blend of epistemologies and procedures, and leave the grand debate to those who care about it"* (Miles & Huberman, 1984, 20). Despite this, the research may be more strongly oriented towards one epistemological approach than another may, and in practice, the lines between epistemologies are often blurred (Miles & Huberman, 1994).

Not all fields of science are suitable for similar research approaches, and it has been acknowledged that in social sciences, complex phenomena are being explained by over-simplistic models. In a Nobel Prize winning speech, Friedrich von Hayek interestingly emphasized this point:

It seems to me that this failure of the economists to guide policy more successfully is closely connected with their propensity to imitate as closely as possible the procedures of the brilliantly successful physical sciences - an attempt which in our field may lead to outright error (Hayek, 1974, para. 2).

Hayek (1974) continues by emphasizing the complexity and heterogeneity of social science and suggests, that too often, the truly important variables remain unidentified. He argues that research within the social sciences too often relies and builds theories only on the data that is available, hence failing to identify factors of significance (Hayek, 1974). The research methodology needs to be adapted into the context in which it is used. In a practice-based discipline such as entrepreneurship, it is difficult to understand everything through a single perspective (Leitch et al, 2010b).

Traditionally, entrepreneurship research has been largely influenced by the positivist view and therefore focused on quantitative research methodologies (Carson & Coviello, 1996; Cope, 2005; Davidsson, 2005). Research calls for novel approaches and combinations of approaches have been made (Carson & Coviello, 1996; Gartner & Birley, 2002; Cope, 2005; Iacobucci & Rosa, 2010; Levie & Lichtenstein, 2010). Leitch et al (2010a) made recently one such call:

...because entrepreneurship is a multi-faceted, complex social construct enacted in many different contexts by a variety of actors, the production of rich, in-depth knowledge requires researchers to adopt diverse ontological and epistemological positions (Leitch et al 2010a, 252).

The foremost aim of this thesis is to uncover and examine facts, and fully describing a phenomenon. Therefore, it relies strongly on a positivistic view (Smircich, 1983; Girod-Séville & Perret, 2001; Allard-Poesi & Maréchal, 2001). This choice was not made prior to starting the research process, but was rather influenced by the current state of field, which is characterized by a fragmented theory base and inconclusive research results (Delmar et al, 2003; Davidsson & Delmar, 2006; Davidsson et al, 2009; Achtenagen et al, 2010; Leitch et al, 2010b; McKelvie & Wiklund, 2010). Subsequently it was found necessary to explore the growth and profitability phenomenon, and to uncover and examine facts through by viewing it from different angles: that from the entrepreneurship research, that of entrepreneurship practice, and that of the stakeholders'. Different angles were chosen in order to build a much clearer picture of the growth and profitability phenomenon, suggesting a more constructivist approach. Similarly, the research attempts to reveal reality, which again, suggests an interpretative approach (Girod-Séville & Perret, 2001).

The research is influenced by the idea of falsification² (Popper, 1959). More specifically, this thesis aims at challenging the current growth and profitability nexus. A pre-determined goal such as this, that attempts to alter a current situation, implies once again a constructivist approach. A constructivist approach relies on a more inductive knowledge creation process. Popper's (1959) view on science is however, solely based on the idea of a deductive logic; similar to Hume he asserts the problem of induction. He completely disregards attempts to call something science

² The word *falsification* can be regarded as too strong for the purpose of describing the approach of this thesis. Therefore, a more accurate description is obtained by using the word *challenging*.

which is based on induction, and argues that all science must be based on a deductive logic. In addition, Popper (1959) argues against the verification of theories, and asserts that theories can never be verified; only falsified. All theories and scientific statements must be testable and falsifiable by experience; it must be possible to show that they are not true. What falsification fundamentally allows is not necessarily the creation of new theories, but the refining and enhancing of a current theory by showing the things that are not true. When the falsified factors are thereafter excluded from the theory, the theory becomes more valid (Popper, 1959).

Thus far, it has been stated that this thesis aims at challenging the current growth and profitability nexus. In addition, it has been stated that falsification means that current theories are shown not to be true. The question, which arises from this, is how can one falsify something? Popper (1959) suggests that in order to falsify something, one need to find something that contradicts or replaces the current system of knowledge:

As to falsification, special rules must be introduced which will determine under what conditions a system is to be regarded as falsified. We say that a theory is falsified only if we have accepted basic statements which contradict it... This condition is necessary, but not sufficient; for we have seen that non-reproducible single occurrences are of no significance to science. Thus a few stray basic statements contradicting a theory will hardly induce us to reject it as falsified. We shall take it as falsified only if we discover a reproducible effect which refutes the theory (Popper, 1959, 66).

As Popper (1959) suggests above, accepted basic statements can be used to falsify a current system. In this thesis, the current system can be understood as the current growth and profitability nexus. The basic statement is: why it is justified to challenge the current growth and profitability nexus, by *replacing growth with profit*. This statement relies heavily on a positivistic view (Miles & Huberman, 1994; Grenier & Josserand, 2001; Bryman, 2007), arguing for a clear-cut replacement of growth with profits. This is seen as the dominant logic of this thesis. However, as shown above, the overall research process is influenced by all three epistemologies.

As Popper (1959) states, single-occurrences are of no significance to science, and hence cannot be used for falsification. For this specific reason, this thesis looks at the current system from three different points of views: from entrepreneurship research, from entrepreneurship practice, and from the perspective of entrepreneurship stakeholders. It attempts to challenge the growth and profitability nexus in each, by answering the following research questions:

- 1) Why is it justified to replace growth with profits in entrepreneurship research?
- 2) Why is it justified to replace growth with profits in entrepreneurship practice?
- 3) Why is it justified to replace growth with profits among entrepreneurship stakeholder perspectives?

3 DEFINING ENTREPRENEURSHIP

Entrepreneurship as a key function in the modern economic discussion started to gain wider acceptance in the beginning of the 20th century (Schumpeter, 1934; Schumpeter, 1954; Kirzner, 1973; Birch, 1987; Cooper, 2005). During this time the role and function of entrepreneurship in the general economy was acknowledged, but it also started to gain interest in academia. It was not until the latter part of the 20th century that the interest towards entrepreneurship as a separate field of research started to gain attention. This initiated a move towards the creation of a new scientific paradigm (Carsrud et al, 1986; Low & MacMillan, 1998; Stevenson & Jarillo, 1990; Sandberg, 1992; Aldrich & Martinez 2001; Busenitz et al, 2003).

Entrepreneurship as a phenomenon, and the role of the entrepreneur within the phenomenon, has been defined from a broad variety of perspectives during the emergence of the entrepreneurship research paradigm. Starting from a more economics oriented perspective Schumpeter (1928; 1934) acknowledged the role of the entrepreneur as an innovator. The radical innovations introduced by entrepreneurs would have a disequilibrating force, which would therefore drive economic development (Schumpeter, 1934; Schumpeter, 1954). Later, Kirzner (1973) also acknowledged the essential role of entrepreneurship for the economy. Kirzner's interest lay in explaining how the market process worked, and therefore his view of the entrepreneur had a more equilibrating force on the economy, instead of the disequilibrating force proposed by Schumpeter.

It was Penrose (1959), who transferred the concept of growth to the center stage of entrepreneurship research. Her interest was in understanding *profitable growth*. The entrepreneur was seen as an enabler, and was therefore given a more functional role:

The term 'entrepreneur' throughout this study is used as a functional sense to refer to individuals or groups within the firm providing entrepreneurial services, whatever their position or occupational classification may be. Entrepreneurial services are those contributions to the operations of a firm which relate to the introduction and acceptance on behalf of the firm of new ideas, particularly with respect to products, location, and significant change in technology, to the acquisition of new managerial personnel, to fundamental changes in the administrative organization of the firm, to the raising of capital, and the making of plans for expansion, including the choice of method of expansion (Penrose, 1959, 31).

This view is, to a large extent, the same as that found in the economic literature (Cole, 1959; Baumol, 1968), where the entrepreneur is seen as the Schumpeterian innovator who "*must lead, perhaps even inspire; he cannot allow things to get into a rut and for him today's practice is never good enough for tomorrow*" (Baumol, 1968, 65).

Later, the widely used trait approach started to build on the idea of understanding entrepreneurship through the individual. The trait approach focuses on how the individual understands the firm, or organization, as a projection of that individual's

goals (Gartner, 1988). This builds on the notion that, those that become entrepreneurs have *different* personal characteristics, than those who do not. The idea is that once these characteristics can be identified, entrepreneurship can also be better understood (Sandberg, 1992). The trait approach was criticized at the time (Gartner, 1988; Stevenson & Jarillo, 1990; Sandberg, 1992; Venkataraman, 1997), but this was only due to the failure of being able to define truly unique entrepreneurial traits (Carsrud & Brännback, 2011). Despite this, the focus shifted from understanding who the entrepreneur is to what entrepreneurship is.

The difficulty with the task of defining entrepreneurship has been acknowledged (Cunningham & Lischeron, 1991; Sandberg, 1992; Gartner, 2001; Davidsson, 2005): *“First, one needs a definition of entrepreneurship, which can no more be defined to everyone's satisfaction than can peace, justice, or pornography”* (Sandberg 1992, 73). Entrepreneurship is an extremely complex field, perhaps even the most complex of all social sciences (Bruyat & Julien, 2001). Hence, finding a generally accepted definition that encompasses all thinkable perspectives on entrepreneurship will probably be a mere impossibility (Davidsson, 2005).

An abundance of definitions of entrepreneurship are offered: *“Entrepreneurship is the creation of new organizations”* (Gartner 1988, 11), entrepreneurship is the *“creation of new enterprise”* (Low & MacMillan, 1988), or *“The essential act of entrepreneurship is new entry”* (Lumpkin & Dess, 1996, 136). Two process-based definitions have gained wide acceptance. First, *“Entrepreneurship is a process by which individuals-either on their own or inside organizations-pursue opportunities without regard to the resources they currently control”* (Stevenson et al, 1989 in Stevenson & Jarillo, 1990, 23). Second, the definition that has achieved, to a somewhat larger degree, a general acceptance is a fairly all-encompassing definition by Shane and Venkataraman (2000):

In contrast to previous research, we define the field of entrepreneurship as the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited (Venkataraman, 1997). Consequently, the field involves the study of sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate, and exploit them (Shane & Venkataraman, 2000, 218).

3.1 The definition of entrepreneurship adopted

Both of the process-based definitions by Stevenson and Jarillo (1990), and by Shane and Venkataraman (2000) are widely used. However, neither has been adopted in this thesis. It is argued here that both definitions, although widely used, fail to show the aim of entrepreneurship specifically. *“Good science has to begin with good definitions”* (Bygrave & Hofer, 1991, 13), implies that the role of the definition in all research is extremely important. A definition should be exact enough to bring clarity to the focus of the research, but still be broad enough to allow generalization and

testability. When a universally accepted definition is not apparent, it is important for the researcher to state clearly, what is meant by a term (Bygrave & Hofer, 1991).

Many definitions fail to identify the final performance aim of entrepreneurship. Ireland et al (2001) are among the few definitions that do identify one. They define entrepreneurship as “*as a context-dependent social process through which individuals and teams create wealth by bringing together unique packages of resources to exploit marketplace opportunities*” (Ireland et al, 2001, 51). Even if Ireland et al (2001) are concerned mainly with profitable growth as a prerequisite to wealth creation, this definition fails to identify that. In so doing, the definition, for example, justifies the adoption of a strategy that attempts to increase shareholder wealth solely through value-increasing high-growth. Such a high-growth strategy is adopted on the assumption of high-growth increasing the potential for a future acquisition or initial public offering (IPO, see chapter 8.5). These types of strategies lie outside the scope of this thesis, and therefore another definition of entrepreneurship is preferred.

Subsequently, the definition adopted for this thesis includes many of the elements of earlier definitions, including a clearly defined performance aim of entrepreneurship. It was originally suggested by Arthur Cole, Professor of Business Economics at Harvard University more than half a century ago. He defined entrepreneurship as:

...the purposeful activity (including an integrative sequence of decisions) of an individual or group of associated individuals, undertaken to initiate, maintain or aggrandize a profit-oriented business unit for the production or distribution of economic goods and services (Cole, 1959, 7).

This definition, although being short and precise, captures the central elements of entrepreneurship. It is still focused enough to clearly narrow down the field allowing practicality for policy makers, practitioners, and academics. Similar to earlier definitions (Stevenson & Jarillo; 1990; Shane & Venkataraman, 2000), it captures the process-view of entrepreneurship (Kirzner, 1973 Hofer & Bygrave, 1992; Carson & Coviello, 1996). From its original form, three minor changes have been made: (I) the including of all three of the following as the activities of the entrepreneur: initiation, maintaining, and growth. (II) The original word *aggrandize* has been replaced with its more modern synonym *grow*. Both these changes were also made in Davidsson et al (2006). (III) The final part ‘*business unit for the production or distribution of economic goods and services*’ is simply replaced by the word *firm*. It is argued that the tasks of the entrepreneur are already covered in the first changes made, and do not need to be repeated. Therefore, the definition of entrepreneurship adopted in this thesis is:

Definition of entrepreneurship: Entrepreneurship is the purposeful activity (including an integrative sequence of decisions) of an individual or group of associated individuals, undertaken to initiate, maintain and grow a profit-oriented firm (adapted from Cole, 1959, 7).

It is argued here, that in contrast to many of the earlier definitions, this definition covers three fundamental aspects of entrepreneurship: (I) entrepreneurship is about

start-ups (initiation), (II) entrepreneurship is about sustainability (maintaining), (III) entrepreneurship has a clearly defined aim (grow a profit-oriented firm).

3.2 Entrepreneurship and profits

Profits ought to be inseparable from the whole notion of entrepreneurship. Schumpeter, Kirzner, and Penrose laid the theoretical foundations of the entrepreneurship research domain. In their work, profits were placed center stage (see chapter four for a more thorough discussion of their work). The word profit is, however, rarely found in any definition of entrepreneurship, even if some may argue that the word profit is implicitly included in many. It has been suggested that a pursuit of profit and growth are the factors that distinguish entrepreneurs from small business managers (Carland et al, 1984).

The definition of entrepreneurship adopted in this thesis is unique in the sense that according to the definition the aim of entrepreneurship is profits (Cole, 1959). *Not growth, but profits*. Profits are the single most important firm-level performance indicator and crucial for all firms, small or large (Penrose, 1959; Venkataraman, 1997; Kim & Mauborgne, 2000; Churchill & Mullins, 2001; Christensen & Raynor, 2003; Drucker, 2007). As follows, profit will be defined and its role is discussed.

3.2.1 Defining profits

The word profit, although seemingly very easy to define, has been the target of many arguments, perhaps due to the fact that it is an interdisciplinary word and used in various contexts. Classic economic theory, with its notion of profit maximization, has already suffered from the word's slowly expanding boundaries. Instead of understanding profits in its simplest definition, profit maximization was found to refer to almost all thinkable financial and non-financial measures in the context of business, clearly stated by Cole (1954, 37): *"The concept has become so general and hazy that it seems to encompass most of man's aims in life"*.

One should bear in mind that there is a fundamental difference between accounting profit and economic profit. While accounting profit refers to any remaining income once all expenses have been withdrawn, economic profit refers to *"the difference between the profits earned by investing resources in a particular activity, and the profits that could have been earned by investing the same resources in the most lucrative alternative activity"* (Besanko et al, 1996, 76).

Hence, economic profit takes into account the opportunity costs, and refers to the relative profitability of one decision over another. Economic profit is close to that of entrepreneurial profit as defined by Schumpeter (1934) and Kirzner (1973). Schumpeter (1934, 128) defines *"entrepreneurial profit as the surplus over costs"*. Kirzner (1973) defines it as follows: *"entrepreneurial profit is the difference between the two sets of*

prices: the price sold and the lower price bought" (Kirzner, 1973, 48). Even if these definitions are seemingly related to accounting profit, and not economic profit, they need to be put in context. Both Schumpeter (1934) and Kirzner (1973) are concerned with the role of entrepreneurship and entrepreneurial decision making as the basis for all profit. Therefore, an *entrepreneurial profit requires an entrepreneurial decision* (Kirzner, 1973; Venkataraman, 1997). An entrepreneurial decision by definition requires the entrepreneur to think of opportunity costs and weigh the different alternatives in which to invest money. The concept of entrepreneurial decisions is what makes these definitions synonymous to economic profit. Even if the concept of profit maximization is argued to be tautological and hence criticized, it could be suggested that the purpose of a business is to maximize entrepreneurial profits.

However, in real life, it can rarely be known with certainty which alternative of two will be more profitable, before the alternative is actually chosen and action is taken. This is especially true, when looking at the individual level, as the outcome of the same inputs may vary extensively. As pointed out by Venkataraman (1997) two individuals with exactly the same amount of knowledge may put this knowledge to very different uses. While one may see a profitable opportunity in something, the other may not; the cognitive map of each person is different (Brännback & Carsrud, 2009). Arguably, economic profits ought to be used when referring to profits, but due to the mere impossibility to do so in this thesis, the word profit refers to *accounting profits i.e. profits available from financial statements*.

There are numerous ways of measuring profitability (Richard et al, 2009). Even if the most absolute measure is the financial year's results, profitability is more commonly measured in terms of different ratios. The ratios are counted either as a percentage-ratio of sales, or alternatively on indicators such as investments, equity, or capital (Leppiniemi & Leppiniemi, 2011). Nevertheless, one measure is often seen to be the best measure for assessing the viability of the business model i.e. earnings before interest and taxes to sales ratio (EBIT³) (Brännback et al, 2010). EBIT is also mostly seen as the best profitability measure by venture capitalists, accountants, public investors, policy makers, and entrepreneurs (Kiviluoto et al, 2010; see chapter 8.5.2).

In practice, there are numerous variables to take into account when reporting and interpreting the financial result of a firm (Leppiniemi & Leppiniemi, 2011). There is always for example, a trade-off as to whether the entrepreneur pays himself/herself a salary, whether he or she takes out dividends, or whether the achieved income is invested back into the firm. All these will have an effect on the reported profitability. Usually the entrepreneur requires reimbursement for the entrepreneurial effort he/she has invested in the firm. Thus, the trade-off between salary and dividends usually becomes relevant, both having an effect on the reported financial result. If the entrepreneur takes out a salary, this will have an effect on the operating result (and hence also EBIT). However, if the entrepreneur takes out dividends there is no effect

³ EBIT= (100*Earnings before interest and taxes/revenues). See Appendix II. In addition to EBIT, earnings before interest and taxes, depreciation and amortization measure (EBIT-DA) is also often preferred.

on operating result, but only on the result of the financial year. According to a publication by the Association of Finnish Accounting Firms the choice of the best method in terms of minimizing payable taxes, requires a case-by-case approach (Hopeasaari, 2011). In Finland, the preferable choice depends on several factors: the income required, income from other sources, choice of insurance, the firm's result, and ownership of shares.⁴

3.2.2 The role of profits

Regardless of how they are defined and measured, profits are of fundamental importance in any firm. As discussed earlier, profits are the essential driver of all firm operations (Schumpeter, 1934; Penrose, 1959; Kirzner, 1973; Drucker, 2007). This can be realized even when looking at entrepreneurship from a legal perspective. The Finnish Limited Liability Companies Act (21.7.2006/624), which is the law that governs both privately and publicly-traded firms, states the purpose of a company as follows: *"The purpose of a company is to generate profits for the shareholders, unless otherwise provided in the Articles of Association"* (chapter 1, section 5). Only this section would however justify a strategy that focus solely on increasing firm valuation, instead of ensuring sustainable operations. Therefore, in addition to previous the same law states that *"The management of a company shall act with due care and promote the interest of the company"* (chapter 1, section 8). When the management fails to meet the requirements set by law, he or she is liable for covering the damages caused to the firm's shareholders: *"A Member of the Board of Directors, a Member of the Supervisory Board and the Managing Director shall be liable in damages for the loss that he or she, in violation of the duty of care referred to in chapter 1, section 8, has in office deliberately or negligently caused to the company"* (Chapter 22, section 1-1).⁵

Not only are profits crucial to the business itself, but even more so for society. *"Profit is a condition of survival. It is the cost of the future, the cost of staying in business"* (Drucker, 2007, 38). Not having the ability to attain profit levels that allow payment for these costs has a direct effect both on the firm and on society. Drucker (2007) suggests that each firm should operate in ways that meet all eight objectives of a firm: marketing, innovation, human resources, financial resources, physical resources, productivity, social responsibility, and finally profits. The surplus that remains after the costs of the first seven objectives have been covered is the real profit. In addition, Kim and Mauborgne (2000) emphasize the importance of profits and argue that the most important task for any business is to build a profitable business model: *"At the end of the day, every company- dot-coms included- has to turn a profit"* (Kim & Mauborgne, 2000, 134).

⁴ It is acknowledged that internationally, the tax laws and accounting practices within a certain country, will affect the choice of preference.

⁵ It is acknowledged that from a legal perspective the interpretation of the law is not as clear as presented here. No legal claims are suggested, but rather the law is presented here in order to validate the argument of profits being a fundamental part of any firm, and to show that it is of great importance to deliver profits in ways found most beneficial from the views of both the firm and its shareholders.

Venkataraman (1997) also points out the firm's role both towards the entrepreneur, as well as towards society. He presents two performance elements, which should be used for measuring performance within entrepreneurship: (I) the absolute level of economic performance that provides a return for the enterprising effort and (II) the social contribution of the individual's effort (Venkataraman, 1997, 132).

The first element covers the reward the entrepreneur receives for his or her entrepreneurial effort. In order to break-even, the profit level must exceed a level that covers for the opportunity cost, lack of liquidity of investment (financial and human resources), risk, and uncertainty. Only a level exceeding this can be called true entrepreneurial profit, and a reward for the entrepreneurial effort. Venkataraman (1997) makes a clear distinction between profit and loss. When the profit level does not cover all of the above stated factors, the entrepreneur is in fact making a loss. This holds true regardless of how the entrepreneur is performing in relation to the competitors. Even if profit, as defined by Venkataraman (1997), is not used in the thesis, it is presented for the purpose of showing that acceptable profit levels need to take into account a large number of variables. Therefore, if the profit levels are seemingly low, they can hardly be evidence of entrepreneurial profits as proposed in the literature.

The second element of performance takes into account the entrepreneur in a social context. This takes into account the social wealth produced by the entrepreneur, such as creating new markets and industries, new technology, employment, taxes, and productivity enhancements (Venkataraman, 1997). Venkataraman (1997) suggests that when measuring performance in entrepreneurship both of these elements should be taken into consideration, as they are what distinguish entrepreneurship from other research domains.

4 THE THEORETICAL FOUNDATIONS OF ENTREPRENEURSHIP RESEARCH

In the introductory chapter, it was argued that for the last two decades a heavy pro-growth bias has existed in entrepreneurship. However, growth has not always been of primary interest. On the contrary, profits were seen as the core of everything else. It is difficult to understand the reason or reasons why profitability has been almost completely disregarded. It is difficult to say whether the transposition is based on scientifically proven facts, or merely something based on a limited number of events developed into a fact-like state. More supporting evidence can be found for the latter, as is demonstrated in this thesis. In order to understand this development four interrelated and central concepts in this thesis need to be described in detail. These are *entrepreneurship*, *innovation*, *profits*, and *growth*. These concepts are examined through the work of three authors that have contributed to the theoretical foundations of entrepreneurship: Joseph Schumpeter, Israel Kirzner, and Edith Penrose.

4.1 Schumpeter's frame-breaking perspective

Schumpeter's background was in economics. Thus, he was fundamentally interested in the growth of economies, and not individual firms. Therefore, he was not directly concerned with the performance and growth of individual firms, but their contribution to economic growth and development. He acknowledged the importance of the individual and suggested that entrepreneurship and innovation played a central role in economic growth (Schumpeter, 1928; 1934). In his view, it was of great importance to look at individual industries and their development in order to understand how an entire economy develops.

In a growing economy, there may be both growing and shrinking industries at the same time. Innovations are the factor that makes economies develop and grow and innovations are created by entrepreneurs (Schumpeter, 1934). The type of innovations that especially help to develop an economy, by shifting the curves of costs and revenues, are disruptive (Schumpeter, 1954). A disruptive innovation is a radical new introduction to the market that completely changes the ways by which firms can create value. By shifting the curves of costs and revenues, market disequilibrium is created, which in turn attracts other firms to try to catch up. Schumpeter (1934) argues that through this process, economies develop.

These ideas are very similar to the process of scientific revolution (Kuhn, 1970), as discussed earlier in chapter two. Scientists breaking the rules of a certain scientific community may start a process that finally leads to a new scientific paradigm (Kuhn, 1970). Similarly, disruptive innovations, as a force that shifts the cost-curves of production and creates completely novel means-ends frameworks, may lead to major leaps in economic development (Schumpeter, 1934).

Schumpeter is most commonly associated with exactly this: suggesting that disruptive innovations and their power of creating market disequilibrium drive economic development and growth. Innovation meant putting productive resources to uses that were untried before, and at the same time withdrawing them from the uses they had so far served; innovation was simply about carrying out new combinations. Schumpeter (1928) also suggested that new firms, specifically, drove innovations, and even argued that innovations could not evolve from large firms. Due to the resource scarcity of new firms, he also acknowledged the extreme risk and difficulty of introducing innovations. The role of innovations was central, for creating new profit opportunities, both at the industrial and the firm level. The necessity to innovate was crucial: *"no firm ever yields returns indefinitely, if only run according to unchanged plan"* (Schumpeter, 1928, 381).

Schumpeter argued that the role of profits and profitability were central to the economy (Schumpeter, 1934). He defined entrepreneurial profit as the surplus over costs (Schumpeter, 1934, 128). In practice, this means all the costs deducted from the generated revenues. The costs include all direct and indirect costs, the wage of labor for the entrepreneur, rent for any land and finally a premium for risk. He however argued that the entrepreneur never bears risk: *"Risk-taking is in no case an element of the entrepreneurial function"* (Schumpeter, 1934, 137). Risk is something he associated with those who carry the cost of innovation, although never with the entrepreneur. Without the existence of potential entrepreneurial profit, there would be no entrepreneurship. The process of carrying out new combinations, being entrepreneurial, is what creates profit. Subsequently, it is the possibility of entrepreneurial profits that drives entrepreneurship, innovation, and finally economic growth (Schumpeter, 1934).

4.2 Penrose and the growth of firms

The book by Penrose (1959) entitled *The theory of the growth of the firm* can be seen as one of the cornerstones in growth entrepreneurship research. It is during the last few decades that the book's messages have influenced entrepreneurship, and it has also influenced organizational economics, strategic management, international business and human resource management (Pitelis, 2009). The explosive growth of references to this book can be seen in figure 1 (chapter five). Today it is difficult to find a publication about growth entrepreneurship without a reference to this book. For this reason, it is important to understand how she conceptualized the ideas of entrepreneurship, innovation, profits, and growth.

Penrose (1959) suggests that growth and profitability are the same. This however holds true only when the fundamental assumptions guiding the entire book are acknowledged. Penrose suggests that it is assumed that the growth of firms is always, and only, driven by an opportunity to make a profit. That is, firms are in a continuous search of increasing profits. She acknowledges that there are firms not driven by this objective, through either unwillingness or lack of competence, but

those firms are not the focus of her book. "It seems reasonable, therefore, to assume that in general the financial and investment decision of firms are controlled by a desire to increase total long-term-profits" (Penrose, 1959, 29). It needs to be understood that Penrose (1959) is a firm-level analysis, not individual level. Therefore, goals pursuit by individual entrepreneurs or shareholders, are not the focus of her work. Penrose (1959) does not only suggest that profit per se is the final objective of a firm, but specifically the continuous increase in profits. She suggests that profits have two roles: for the sake of existence, and for increasing profits. Profits are hence an incentive for the shareholders, but at the same time the money used for new profitable investments.

Moreover, growth is a process that takes place over time. How the firm manages the entire process, depends on the available resources. It is the unique combination of resources (e.g. managerial, human, capital, assets), aimed at a profitable opportunity (a specific market), that explains the growth process of a firm. Therefore, the same resource bundle may not work at another point in time, or in another market or another firm – they are unique and context-specific.

I have stressed over and over again that one of the most significant characteristics of such services (productive, entrepreneurial and managerial) is their heterogeneity, their uniqueness for every individual firm. The productive services that the entrepreneurs and managers of any given firm are capable of rendering to that firm are not reducible to any common denominator and are therefore incapable of quantitative treatments (Penrose, 1959, 199).

Innovation is the source of profit. Profitable growth opportunities exist in the environment, and in order to be able to take advantage of these, the firm needs a unique set of resources. Overall, the work by Penrose is very much focused on *profitable growth* and how to increase the profits gained. She acknowledges that it is only those types of firms that are of interest to her and form the basis of her work. Hence, her work should not even be applied to other types of firms i.e. firms that do not pursue an increase in profits:

...that there are firms who consistently make mistakes, over-estimate what they can do, guess wrongly the future cause of events, no one can doubt, but they do not interest us here; no theory of growth will explain their action – only a theory designed to explain mistakes or failure (Penrose, 1959, 41).

4.3 Kirzner's incremental innovation perspective

The two scholars that most commonly appear in the same discussion are Schumpeter and Kirzner. This may be explained by their suggested contrasting views on the fundamental differences of the role of innovation in entrepreneurship (Kirzner, 2009). While Schumpeter was concerned with entrepreneurship and innovation as a disequilibrating force that drove economic development and growth, Kirzner saw the role of entrepreneurship differently (Kirzner, 1973). For him entrepreneurship

was concerned with making the market process work. Hence, he saw entrepreneurship as an equilibrating force.

Profits, according to Kirzner, are the positive difference between prices bought and prices sold. Discovering such an opportunity, in his theory, would not require any type of investment and hence no form of innovation. Therefore, the Kirznerian entrepreneur is one that is alert, one that sees undiscovered opportunities in the environment. The Kirznerian entrepreneur does not attempt to shift the curves of costs and revenues such as the Schumpeterian entrepreneur, but instead notices that they have been shifted.

Kirzner (1973) makes a clear distinction between ownership and entrepreneurship. He argues that an entrepreneurial profit requires an entrepreneurial decision. For example, Person A decides to buy a product at price X at T1. Then he retains that product with no specific intention of selling it. Then at T2, he discovers that the price has gone up and sells it at a higher price than he first bought it for at T1. In contrast, Person B buys a product at T1 because he sees that changes in the environment will make it possible for him to sell it at a profit at T2. These two examples are seemingly similar; both persons have owned the product and finally made the same amount of profit. However, only Person B has made an entrepreneurial decision and made an entrepreneurial profit. According to Kirzner, profit emerges when an entrepreneur is able to judge the future price of a product better than someone else is.

Similar to Schumpeter and Penrose, Kirzner's perspective also sees profits as lying in the core of entrepreneurship. According to Kirzner, entrepreneurship is about alertness for opportunities. The reason why someone would like to be alert in the first place is the potential for making profits: "*Profits is inseparable from the very possibility of entrepreneurship in general*" (Kirzner, 1973, 76). Kirzner is interested in the drivers that make the market process work, and for him, that driver is entrepreneurship. According to Kirzner, it is necessary for an economy to move gradually towards a position of equilibrium. This movement happens through alert entrepreneurs who see profit opportunities.

The view and role of entrepreneurship, as suggested by Kirzner, has often been translated into a complete misunderstanding and false interpretation of his work (Kirzner, 2009). More specifically, the views by Kirzner and Schumpeter are often contrasted as being mutually exclusive, even if they fundamentally attempt to explain completely different phenomena. The common view is that there are two types of entrepreneurs: either the radically innovative Schumpeterian innovator or then the more passive and alert Kirznerian entrepreneur who does not require an innovation to take place. According to Kirzner (2009), this confusion in the literature has led to streams of research, together with argumentation and contradictions. This has occurred regardless of the fact that Schumpeter (1934) and Kirzner (1973) do not even attempt to explain the same thing. They are simply two sides of the same coin (Brännback & Carsrud, 2008).

Schumpeter essentially attempted to explain the development of an economy, while Kirzner attempted to explain how the market-process works. Kirzner explicitly focused on entrepreneurship as a phenomenon driving the process towards equilibrium and hence excluded other types of entrepreneurship. Kirzner wanted to show “...how the systematic competitive entrepreneurial market process can be traced back to entrepreneurial decisions, even when these do not display Schumpeterian equilibrium-disturbing creativity” (Kirzner, 2009, 147f.). Therefore, Kirzner has never attempted to explain what successful entrepreneurship is. In primarily referring to his own work, Kirzner (1973) states the following:

My own work has nothing to say about the secrets of successful entrepreneurship. My work has explored not the nature of talents needed for entrepreneurial success, not any guidelines to be followed by would-be successful entrepreneurs, but, instead, the nature of the market process set in motion by the entrepreneurial decisions (both successful and unsuccessful ones!) (Kirzner, 2009, 145).

The views of Kirzner and Schumpeter should be seen as complementary (Brännback & Carsrud, 2008). Both Kirzner and Schumpeter agree that for the development of an economy, the disequilibrating force engendered by the creative entrepreneur is necessary (Kirzner, 2009). However, thereafter to make the market process work and move towards a position of equilibrium, the Kirznerian entrepreneur is necessary. Fundamentally, the discussion stems back to differences in the time frame and whether looking at the phenomenon from a long or short term time frame. In the longer term, it is the Schumpeterian entrepreneur that creates development, while in the shorter term the Kirznerian entrepreneur creates the gradual movement towards market equilibrium.

4.4 Concluding remarks

A closer exploration of the works by Schumpeter, Penrose, and Kirzner generates the question of how the present situation occurred; one where growth is considered the performance, superior to all others, and its attainment almost seems acceptable at any cost. Profitability has simply become a factor of secondary importance. In those work that has contributed considerably to the theoretical foundations of the field, the focus lies in creating profitability. Moreover, regardless of whether the process contains a disequilibrating or an equilibrating force, profit stands center stage.

Profitability is the major concern regardless whether it is examined from an economics point of view (Schumpeter, 1928; 1934; 1954; Kirzner, 1973), or an entrepreneurship point of view (Penrose, 1959)(see table 2 below for a summary of the points discussed). The perspective is exclusively about profits and profitability. Despite Schumpeter, Penrose, and Kirzner all examining the key concepts from different perspectives they all agree that profits are essential, even crucial, for all business. Profits, and the expectation of future profits, are both what makes

entrepreneurship and innovation appear in the first place, but also that which enables their future existence.

Considering the entrepreneurship domain, Schumpeter, Kirzner and Penrose form the very basis of countless studies on performance and especially on firm growth. Thus, it is difficult to understand why the focus is not on profits. It almost appears as if assumptions have driven future action; the expectations of the advantages of growth are unquestionably accepted as truths. These almost myth-like assumptions about the means of achieving the preferred end, high-growth leading to high profits, have become widely accepted and eventually developed into something of a conventional wisdom. These assumptions have guided decision making among both practitioners and policy makers and even academic researchers.

The phenomenon of assumptions and myths guiding decision-making is by no means novel. As discussed in the introduction, the existence of myths and their influence on actions taken by practitioners and policy makers have been identified before (Drucker, 1982; Gibb, 2000; Shane, 2008; Levie et al, 2011). Perhaps it is the heterogeneity of the entire entrepreneurship domain (Davidsson, 2005) and hence the difficulty of studying everything, that has contributed to the development of replacing knowledge with assumptions (Gibb, 2000). This has led to a wider adoption of strategies that may have worked in some contexts within some firms, at some point in time and during a certain period of time; in this case a high-growth strategy leading to high profitability.

	Schumpeter (1928, 1934, 1954)	Penrose (1959)	Kirzner (1973)
Entrepreneurship	Key for all economic development, disequilibrating	Entrepreneurship, or enterprise, is a function and mainly a psychological disposition that makes an individual take a change in hope of future gain. The driver for growth.	Key for market processes to work; equilibrating. Characterized by alertness; changes brought about in response to the existing pattern of mistaken decisions, a pattern characterized by missed opportunities.
Innovation	Carrying out new combinations. Central drivers for economic development.	Innovation as the source of profits; technological innovation of secondary importance.	There may be or there may be not, but innovation is not a necessary requirement for entrepreneurship
Growth	Economic growth is driven by growth of individual industries, which are driven by innovations. The growth of individual firms not addressed.	A process driven by managerial capabilities and resources.	Not addressed
Profit	Profits and profitable opportunities are central to entrepreneurship	Central; the entire book is about profit-seeking and increasing profits.	Profits are inseparable from entrepreneurship in general; there would not be such a thing as entrepreneurship if there were no profits

Table 2: Entrepreneurship, Innovation, Profits, and Growth

5 GROWTH ENTREPRENEURSHIP

Today, entrepreneurship is the most rapidly growing field within social science (Reader & Watkins, 2006). The field has experienced tremendous growth during the past three decades (Sexton, 1988; Katz, 2003; Casson, 2005). An illustration of this can be seen by looking at the citations of Penrose (1959) (see figure 1 below).

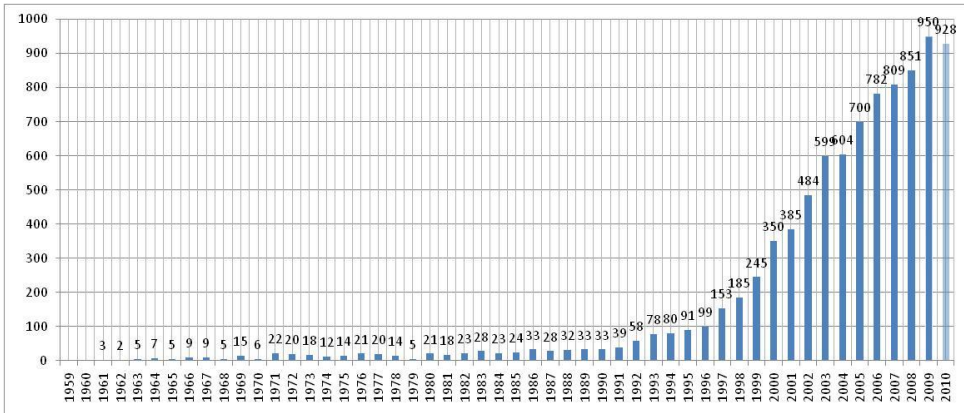


Figure 1: Citations on Penrose's Theory of the Growth of the Firm 1959-2010 (n = 8978)

Figure 1 shows all 8,978 publications citing Penrose's Theory of the Growth of the Firm since its publication in 1959. The number of citations was extracted from Google Scholar using annual searches for each year from 1959 to 2010. It has been acknowledged that the search results conducted by Google Scholar may not be as accurate for old publications (Pauly et al, 2005). Pauly et al (2005) found that for searches between 1925 and 1989 the number of citations were less than half of those found by ISI Web of Science. Even if the more accurate citation count for that period would be double that reported in figure 1 above, it would not change the point made here. In addition, an annual citation search seems to produce a smaller total number of citations, than a search without any criteria (a total of 12 606 citations). However, for illustrative purposes such as this, it is not assumed to have a large impact.

The graph in figure 1 shows that for the first 30 years the book was cited less than 30 times a year. Since the beginning of the 1990s, the growth has been very rapid. In 1990, the book was on average cited 0.09 times a day, while in 2000 this figure had increased to almost one citation every day (0.96). A decade later in 2010, the number of daily citations had increased to 2.5. While this graph is inter-disciplinary and does not take into consideration in which types of publications these citations have been made, it still illustrates an explosive interest in firm growth. The rapid development of the field may have caused the field to become fragmented, with a creation of a number of sub-fields; some more related than others.

A number of earlier studies have shown the existence of so called intellectual groupings in entrepreneurship research (Cunningham & Lischeron, 1991; Gartner,

2001; Gartner et al, 2006; Reader & Watkins, 2006). An intellectual grouping exists when researchers share a common view of the field or concentrate their research around common topics or grand-themes within the research field (Ratnatunga & Romano, 1997; Grégoire et al, 2006). Entrepreneurship is a phenomenon that takes place in a complex environment. Therefore, the field naturally contains a number of related intellectual groupings. Since many of these groupings are studied in isolation from each other (Grégoire et al, 2006; Gartner et al, 2006), it has been argued that this fragmentation may be a factor hindering the development of the field (Grégoire et al, 2006). It almost seems as if the field itself is suffering from a form of fast-growth.

Growth entrepreneurship is one intellectual grouping within the entrepreneurship research domain. Entrepreneurship and growth are often closely paralleled and the two are even used as synonyms (Sexton, 1988; Stevenson & Jarillo, 1990; Davidsson et al, 2002; Shepherd & Wiklund, 2005). It has been argued that startup *and the growth of ventures* is a theme that unifies all the intellectual groupings of the field (Readers & Watkins, 2006). However, growth, and especially high-growth, is a heterogeneous concept (Drucker, 1982; Delmar et al, 2003; Chan et al, 2006). This has led to different streams of research within growth entrepreneurship. In a recent article, McKelvie and Wiklund (2010) identify three streams, independent from each other, of growth entrepreneurship research: (I) growth as an outcome, (II) the outcome of growth and (III) growth as a process. In order to get a richer picture of the entire field of growth entrepreneurship, these will be elaborated as follows. Only the first two are of relevance to the thesis, and therefore the focus will be placed on them.

5.1 Growth as an outcome

“Growth is a vital indicator of any thriving firm” (Gilbert et al, 2006, 945).

Perhaps one distinct reason for the existence of the pro-growth bias is the view of growth as an outcome. This view considers growth simply as a dependent variable, an outcome, and then uses a number of independent variables to explain this dependent variable. Broad ranges of independent variables have been used to explain differences in growth. Gilbert et al (2006) found that the five most commonly used predictors of growth are: (I) the personality characteristics of the entrepreneur, (II) the resources available to the firm, (III) the strategy of the firm, (IV) the geographic location of the firm, and (V) its industrial context. Kiviluoto et al (2011) drew similar conclusions and found that the most commonly used independent variables in growth studies are: internal resources, strategy related, entrepreneurs/management related, industry related, planning, external resources and entrepreneurial orientation. The research method in such studies is often very simple. The studies use the financial growth indicators that are available, and then use a set of independent variables to measure their explanatory power on growth (Shepherd & Wiklund, 2009; Kiviluoto et al, 2011).

Growth as an outcome has been viewed from a number of different theoretical perspectives: the resource-based view (Penrose, 1959), network theory (Donckels & Lambrecht, 1995), knowledge and learning theory (Johanson & Vahlne, 1977; Macpherson & Holt, 2007), social capital theory (Florin et al, 2003), motivational theories (Wiklund et al, 2003), and the stages theory (Levie & Lichtenstein, 2010), to name only a few. Growth and entrepreneurship are often seen as very closely related, even synonymous (Davidsson et al, 2002). What this suggests is that when studying the factors that are most likely to explain growth, one ought to be studying the factors that most likely explain entrepreneurship in the first place. This would make the list considerably longer, and bring, in among other things, a number of more psychology-related theories (see for example Krueger et al, 2000).

Thus, there are numerous theoretical foundations that can be used to study growth as an outcome. Despite the existence of these various theoretical perspectives, studies often manage to explain only a portion of the variance in growth (McKelvie & Wiklund, 2010). This can be due to the use of mixed units of analysis or varying ways of measuring growth.

5.1.1 Measuring growth at individual-level and firm-level

When studying the growth of firms there are different levels of sampling and analysis to be considered: individual, firm, industry, and spatial (Davidsson, 2005). All these levels, being extremely heterogeneous, require their own types of factors to be considered. The reason why is it essential to consider these is a matter of *theoretical representativeness* (Davidsson, 2005, 69) i.e. does the sample represent the type of phenomenon that is described by the original theory.

The smallest, and at the same time the most heterogeneous, of the sampling units is the individual. Entrepreneurship research is becoming increasingly more de-personalized, which is something that has also happened in economics research (Baumol, 1968). Penrose already argued earlier that one of the major problems with entrepreneurship research is its extremely personal aspect, and she foresaw that it would become one of the major obstacles in attempt for generating a general theory about firm growth (Penrose, 1959, 33). Ultimately, it is not the firms, which make the decision whether or not to pursue new opportunities, and hence grow, it is the individual entrepreneur.

The very same problem that Penrose highlighted half a decade ago is still found today: *“Presently, entrepreneurs – as the enactors of business growth – are not given the central role they deserve, though they decide whether to grow the business or not”* (Achtenagen et al, 2010, 309). One explanation of this may be that at some point the research on personality traits was perceived to have met an impasse (Gartner, 1988; Rauch & Frese, 2007). The research community seemed to agree that the traits approach was not a fruitful starting point (Gartner, 1988). Personality factors were found to explain very little of who becomes an entrepreneur and who does not (Shane, 2008). This was decided despite the fact that research can show strong

support for personal characteristics and entrepreneurial intentions (Krueger et al, 2000). The transition away from the traits approach was due to the research community's fruitless attempt to identify unique traits that would distinguish those who would become entrepreneurs, from those who do not (Carsrud & Brännback, 2011). The transition was criticized by Rauch and Frese (2007). In a meta-analysis of 116 independent sample, and an overall sample size of 26 700 individuals, Rauch and Frese (2007) studied how traits affect business creation and success. The authors found results, although not always statistically significant, that personal traits did in fact explain the creation and success of the studied firms.

The most commonly used level of analysis in growth entrepreneurship research is the firm level. Davidsson and Wiklund (2001) noted a strong and growing dominance for firm-level research. This may have been due to the growing interest in entrepreneurship as a phenomenon and its boundaries stretching to other forms, such as corporate entrepreneurship. Theories from strategic management, such as the resource-base view, became more widely used also in entrepreneurship research (Pitelis, 2009). This may have shifted the focus from the entrepreneurs per se, to the entrepreneur (with all his qualities) being only one resource among all the others.

Individual- and firm-level analyses are the dominant methods in entrepreneurship research. Both are heterogeneous, which needs to be acknowledged (Davidsson, 2005). While choosing the level of analysis the most important criteria is that, the level of analysis corresponds with what is proposed by the theoretical framework, without forgetting practical relevance. The level of analysis should be chosen once three preceding decisions have been made: (I) the specification of purpose, (II) specification of theoretical perspective, and (III) the specification of focus (Low & Macmillan, 1988).

5.1.2 The multidimensionality of growth

Growth is a multidimensional concept, which can be conceptualized in a number of ways. Understanding this requires a closer look at some of the studies focusing on growth. Growth is most commonly associated with performance, which is further seen as being equal to success i.e. high performance equals high success. Predicting performance has always been of great interest within the field of entrepreneurship (Cooper, 2005).

Performance

A large share of research is concerned with predicting performance. March and Sutton (1997) found that of a total of 439 articles published in three peer-review journals (Strategic Management Journal, the Academy of Management Journal, and the Administrative Science Quarterly) between 1993 and 1995, 28% used performance as their dependent variable. In a review of 118 articles published between 1980 and 2009 in five peer-review journals (Entrepreneurship: Theory & Practice, Journal of Business Venturing, Journal of Small Business Management, Strategic Management Journal, and the Academy of Management Journal), Kiviluoto

et al (2011) found that 42% of the articles used performance as their dependent variable. Evidently, performance is a subject that has attracted the attention of a number of researchers for some time now. Performance has been vastly researched, but with regard to conceptualizing performance, results are inconclusive.

Richard et al (2009) identified a total number of 207 different performance measures used in a total number of 213 articles published in five management journals (Academy of Management Journal, Administrative Science Quarterly, Journal of International Business Studies, Journal of Management, and Strategic Management Journal), using performance as the dependent variable. Murphy et al (1996) made a similar review on studies that fulfilled the following three criteria: (I) performance as a dependent variable, (II) published in entrepreneurship journals between 1987 and 1993, and (III) focused only on small and new ventures. A total of 71 different performance measures were identified in the 52 articles reviewed.

Another review of all 389 articles published between 2003 and 2005 in four journals (Journal of Business Venturing, Entrepreneurship: Theory & Practice, Small Business Economics, and International Small Business Journal), found that 111 articles (28.5%) used performance as a dependent variable (Brush et al, 2008). In 51.4% of these articles performance referred to financial performance, in 27% to financial and operational performance, and in the remaining 21.6% to organizational effectiveness. Kiviluoto et al (2011, see chapter 6.5 for a more detailed analysis) found that the articles that used performance as a dependent variable, conceptualized performance as: profits (absolute and relative), sales growth (absolute and relative), employment growth, market share growth, assets growth, R&D spending growth, or growth in the number of patents, to name only a few. In addition to these, there were combinations of measures, transformed measures, and the use of qualitative measures. Thus, performance is perceived by most researchers as a multidimensional concept.

Growth

Performance, and hence success, vary greatly in meaning. Growth may be a part of it, or it may not. As has been discussed before, similar to performance, growth is a multidimensional concept. Understanding it requires a closer look at its conceptualization in the literature.

In a review of 35 studies on organizational growth, published in leading organization, management and entrepreneurship journals, Weinzimmer et al (1998) found that 83% of the studies conceptualized growth as sales growth, and nearly 75% used it as the only measure of growth. Delmar (2006) studied 55 articles published in leading entrepreneurship journals. The articles studied growth as a dependent variable and the study consisted solely of small and new ventures. The four most widely used growth measures were: sales growth (used in 31% of the articles), employment growth (29%), multiple indicators (18%), and performance (subjective evaluation, 13%). Gilbert et al (2006) studied 48 empirical studies from management

and entrepreneurship journals. They found that the most used measures of growth were sales, employment, and market share.

Achtenagen et al (2010) made an update on the review by Weinzimmer et al (1998) and Delmar (2006), and studied 55 empirical articles published in four leading entrepreneurship journals between 1997 and 2008: *Entrepreneurship: Theory & Practice*, *Journal of Business Venturing*, *Entrepreneurship and Regional Development*, and *International Small Business Journal*. The criterion used for the selection of articles was that the word growth needed to be used in the title of the paper. The authors found that in 23 studies (42%) sales growth was used as a growth measure, followed by employment (15, 26%), growth intentions (10, 18%), and profitability (4, 7%). A combination of these was used in 9 (16%) studies, while the remainder used growth strategies, assets/value, or then the growth measure was not reported.

Finally, Shepherd and Wiklund (2009) extended this review by Weinzimmer et al (1998) and made a review of 82 papers published between 1992 and 1998 in leading management journals. They found that in 61% of the studies sales growth was used to measure growth, followed by employment (13%), profits (9%), equity/assets (6%), and others. Table 3 below summarizes the conceptualizations of growth in the above mentioned studies (excluding Gilbert et al, 2006, which does not provide exact numbers).

Authors	Weinzimmer et al (1998)	Delmar (2006)	Shepherd & Wiklund (2009)	Achtenagen et al (2010)
Time-frame	1997-1998	1989-1996	1992-2006	1997-2008
Number of studies	35	55	82	56
Growth indicator and frequency	Sales (83%) Employment (29%)*	Sales (31%) Employment (29%) Multiple indicators (18%) Subjective evaluation of performance (13%)	Sales (74%) Employment (16%) Profit (11%) Equity/assets (7%)*	Sales (42%) Employment (26%) Growth intentions (18%) Profit (7%)

* The total percentage adding up to more than 100% depends on the use of multiple indicators in some studies

Table 3: Growth indicators in earlier studies

Growth as process

Penrose (1959) emphasized that growth is a process that happens over time. Therefore, a central question is how to capture this development. One way of identifying how the development has been captured is by looking at the timeframes used in earlier studies.

In the articles reviewed by Weinzimmer et al (1998), the most common time frames studied were five years (31%) and three years (29%), followed by one (11%) and two (11%). Delmar (2006) found that the most common time frames used were either five (24%), one (22%), or three years (16%). Finally, Shepherd and Wiklund (2009) found that the most common time spans were one year(17%) and five years (16%), although, two (13%), three (6%) and four years (4%) were also found common.

Usually, growth studies assume a linear relationship between the explanatory variables and the dependent variable. Subsequently linear relationship models, such as linear regression analysis, are used. Instead of attempting to capture the natural annual fluctuation over time, an average annual growth rate is often used (McKelvie & Wiklund, 2010). Weinzimmer et al (1998) found that in 86% of the studies growth was measured as a difference between first-year and last-year sizes. This naturally omits potentially crucial data (Gilbert et al, 2006), something illustrated in the example below.

An example of two completely hypothetical firms, Firm A and Firm B will be used to illustrate how data is omitted when using average growth measures. Both firms start in year 1 with sales of 100. Firm A grows organically 20% per year for three years, and reaches sales of 172.8 in year 4, equivalent to an average annual growth rate of 24.3%. Firm B, on the contrary, experiences a 5% sales decrease for the first two years, leading to total sales of 90.25 in year 3. After this, they acquire a firm, which doubles their sales, and hence they reach sales of 180.5 at the end of year 4, equivalent to an annual average growth rate of 26.8%. When the average measures of sales growth, for both Firm A and Firm B, are put into the same regression analysis, with a number of explanatory variables, it is justified to ask; what will this tell us? Firm A may be evidence of an efficient sales organization that manages steady growth year after year, while Firm B is evidence of a completely different phenomenon.

Achtenagen et al (2010) found that there is a change taking place and research is beginning to acknowledge the complexity of growth. In their review, they found that longitudinal studies (defined by the authors as studies that uses a minimum of two annual growth measures) are becoming increasingly common. Achtenagen et al (2010) found that a majority, 60% of the studies, used longitudinal data. Nevertheless, 40% of the studies conducted by year 2010 did not capture the effects of annual variations in growth.

The multidimensionality of growth, together with the fact of growth being a process that evolves over time, creates a complex research context. The complexity is increasingly accentuated when comparing growth measures and thereby also past research results.

5.1.3 Comparing growth measures

From a strategic management point of view, performance is a multidimensional concept consisting of different domains: financial performance, financial and

operational performance (business performance), and overall effectiveness (Venkataraman & Ramanujam, 1986). Venkataraman and Ramanujam (1986) acknowledged that in strategic management research attention has been drawn to the conflicting nature of various performance measures, such as the conflicting relationship between growth and profits when considering the timeframe and its effect on the measures. The authors point out that many of the most commonly used financial performance measures are not comparable, as they reflect *completely distinct dimensions of performance*. The entrepreneurship research community has seemingly failed to acknowledge the complexities, and various incomparable measures are often seen as substitutes (Murphy et al, 1996; Delmar, 2006; Shepherd & Wiklund, 2009).

Comparing different growth and performance measures requires an understanding of the relationship between variables. Their representativeness of the perceived performance dimension needs to be assessed (Venkataraman & Ramanujam, 1986). The comparability of performance measures can be assessed by looking at the level of concurrent validity between them. High concurrent validity does not implicitly mean that the two measures provide exactly the same information, and hence would be interchangeable, but that *“they share a sufficient amount of variance that enables these different measures to provide a similar picture of the underlying construct. It allows us to have some faith that we are comparing apples with apples to accumulate knowledge”* (Shepherd & Wiklund, 2009, 110). Based on the correlation coefficient the concurrent validity is determined as follows: high ($r. >=0.5$), moderate ($r. =0.3-0.5$), low ($r. = 0.1-0.3$), no ($r. = <0.1$) (Shepherd & Wiklund, 2009).

Shepherd and Wiklund (2009) found that relatively few measures show high concurrent validity. In addition, they found large variations in performance over time, indicating low comparability between the same performance-indicators measured during different time-spans. As follows, the concurrent validity is explored in three studies focusing on the relationship between performance measures: two which are often cited within the context, Weinzimmer et al (1998) and Delmar (2006), and one more recent, Achtenagen et al (2010). An analysis of these studies shows high variability between different conceptualizations of performance, emphasizing the problematic nature of comparing measures.

First, Weinzimmer et al (1998) studied the performance of 193 publicly-traded firms from 48 different industries. Data was extracted from the COMPUSTAT database. The authors point out surprisingly low correlation between the different performance constructs, indicating low comparability between various performance measures (Weinzimmer et al, 1998). In addition to weak correlations between growth indicators (sales, employment, assets) they also found high variability in ways of computing growth (absolute, relative, regression line).

Table 4 below shows the concurrent validities between performance measures in Weinzimmer et al (1998). Three things are noteworthy: (I) high concurrent validity exists between absolute and relative measures, (II) high concurrent validity exists between similar ways of computing performance: absolute-absolute, relative-relative,

average-average, and (III) the concurrent validity is dependent on the type of measurement, e.g. average measures are not comparable with other measurement types.

Concurrent validities between performance measures*	Abs. sales (4y-tot.)	Abs. employees (4y-tot.)	Abs. assets (4y-tot.)	Avg. sales **	Avg. employees	Avg. assets	Rel. sales (4y.)***	Rel. employees (4y.)	Rel. assets (4y.)
Abs. sales (4y-tot.)	High								
Abs. employees (4y-tot.)	High	High							
Abs. assets (4y-tot.)	High	High	High						
Avg. sales **	Low	Low	Low	High					
Avg. employees	Moderate	Moderate	Moderate	High					
Avg. assets	No	No	Low	High	Moderate				
Rel. sales (4y.)***	High	High	High	No	Low	No			
Rel. employees (4y.)	High	High	High	Low	Moderate	No	High		
Rel. assets (4y.)	High	High	High	Low	Low	Low	High	High	

* High (r.>=0.5), Moderate (r.=0.3-0.5), Low (r.= 0.1-0.3), No (r.<0.1)
 ** Quarterly average
 *** Difference between 1991 and 1987

Table 4: Concurrent validities between performance measures in Weinzimmer et al (1998)

Source: Created based on the data from Weinzimmer et al (1998, 244).

Second, Delmar (2006) studied the performance of 396 privately-held Swedish firms. Data was extracted from Statistics Sweden and included firms with 5-49 employees from the following sectors: high-tech, manufacturing, services, and professional services. Performance data was from 1991 and 1994. The correlation coefficients between performance measures shows two things (see table 5 below): (I) absolute and relative measures are poorly correlated regardless of measurement type, hence indicating low concurrent validity, (II) high concurrent validity exist between measures with similar measurement types: absolute-absolute, relative-relative. In addition, Delmar (2006) evidenced high variation in the study outcome depending on how performance is conceptualized, indicating low comparability between studies using different performance conceptualizations.

Concurrent validities between performance measures*	Abs. employm ent (3y-tot.)	Abs. multiple (3y-tot.)	Abs. sales (3y-tot.)	Rel. employment (3y.)	Rel. multiple (3y.)	Rel. sales (3y.)
Abs. employment (3y-tot.)**						
Abs. multiple *** (3y-tot.)	High					
Abs. sales (3y-tot.)	High	High				
Rel. employment (3y.)	Low	Low	Low			
Rel. multiple (3y.)	Low	Low	Low	High		
Rel. sales (3y.)	Low	Low	Low	High	High	

* High (r.>=0.5), Moderate (r.=0.3-0.5), Low (r.= 0.1-0.3), No (r.=<0.1)
** Difference between 1991 and 1994
*** sum of changes in employees and sales

Table 5: Concurrent validities between performance measures in Delmar (2006)

Source: Created based on the data from Delmar (2006, 74).

Third, Achtenagen et al (2010) studied the performance of 827 privately-held Swedish firms. Data was extracted from Statistics Sweden and consisted of SME's from various industries. The performance data was from 1997 and 2000. The correlation coefficients between the performance measures shows four things (see table 6 below): (I) very low concurrent validity between absolute and relative growth measures, (II) high concurrent validity between absolute growth measures, but only moderate between relative, (III) no concurrent validity between any profit measure and growth measures, (IV) high variability in the concurrent validities between profit measures. In addition to the low comparability of different performance measures, the authors found a disturbing convention in choosing the performance measure; no motivation is given for the choice of growth measure in 58% of the studies, and up to 64% of the studies provide no definition of the used conceptualization of growth (Achtenagen et al, 2010).

Concurrent validities between performance measures*	Abs. employment growth (3y-tot.)	Abs. sales growth (3y-tot.)	Rel. employment growth (3y.)	Rel. sales growth (3y.)	Profit 2000	ROE 2000	ROA 2000	Firm value growth
Abs. employment growth (3y-tot.)**								
Abs. sales growth (3y-tot.)**	High							
Rel. employment growth (3y.)	Moderate	Low						
Rel. sales growth (3y.)	No	No	Moderate					
Profit 2000	No	No	No	No				
ROE 2000	No	No	No	No	Low			
ROA 2000	No	No	No	No	Moderate	High		
Firm value growth***	No	No	No	No	No	No	No	No

* High ($r.>=0.5$), Moderate ($r.=0.3-0.5$), Low ($r.=0.1-0.3$), No ($r.<0.1$)

** Difference between 1997 and 2000

***Self-reported *(5p-scale) estimate of the 3-year change in firm value

Table 6: Concurrent validities between performance measures in Achtenagen et al (2010)

Source: Created based on the data from Achtenagen et al (2010).

To conclude the discussion on comparing growth research, the results shown above point out an issue of crucial importance. The high variability in growth indicators and the low correlations between them suggests that by not using exactly the same growth measures, the results of one study cannot be compared or used as a basis for another study: *“the same model differed greatly in its ability to explain growth dependent on the chosen indicator...little effort has been done to truly understand the pros and cons of different measures”*(Delmar, 2006, 79). Additionally, Shepherd and Wiklund (2009, 105), start their paper with *“Although knowledge accumulation is dependent upon relationships among constructs being robust across different measurement and sampling decisions, scholars have not sufficiently established such robustness for the construct of firm growth”*.

It remains of importance for the researcher to acknowledge the shortcomings of various performance measures, and to aim at avoiding the major pitfalls during the research process. The performance measures chosen should be both theoretically representative and practically relevant. Achtenagen et al (2010) point out that academic research measure growth in ways irrelevant for the practitioners in the field. A convention of comparing incomparable research results, which are often not even relevant for practitioners, has the danger of leading to a situation where academic research and theory building starts to diverge increasingly from the world it attempts to explain. This conflicts with the fundamental role of theory (Bacharach, 1989; Van de Ven, 1989), and may contribute to an increasing fragmentation of the field.

In this section, the focus has been on research focusing on growth as an outcome. The section was started with an illustrative quote by Gilbert et al (2006), illustrating a typical view on growth, one that parallels growth with success. Thus far, the focus has only been on one side of the coin, which obviously has another side too:

Through further empirical research on new venture growth, the field will improve its understanding of this complex process toward helping entrepreneurs achieve the *ultimate measure of performance, longevity and wealth creation – profitability* (italics added)(Gilbert et al, 2006, 945).

5.2 The outcome of growth

After the describing *what* is being studied and *how* it is being studied, the focus will now be placed on the most fruitful question, namely the *why* (Whetten, 1989). Why is growth seen as a way for conceptualizing business success (March & Sutton, 1997; Murphy et al, 1996; Davidsson et al, 2009; Richard et al, 2009; Steffens et al, 2009; Kiviluoto et al, 2010) and what is the theoretical and practical evidence with regard to the growth and profitability relationship?

5.2.1 The growth and profitability nexus in theory

The most important factor as to why there seems to be such an over-emphasis on growth, a pro-growth bias in entrepreneurship (Davidsson et al, 2007), is the clear preference for a large size and growth. Striving for growth and a larger size is expected to lead to profits. Evidence supporting this can be found from various theoretical standpoints. Steffens et al (2009) discusses four of these: economies of scale, experience curve effects, first-mover advantages, and network externalities. Regardless of the fact that these four views are traditionally associated with the behavior of established firms, they also seem to have influenced entrepreneurship literature.

Economies of scale

The idea of striving for growth and size stems back much further than only the firm-level context. Starting from a macro level and from a nation's point of view, the development and growth of an economy improves the welfare of its population. Rostow (1959) discusses how the growth of the economy through different stages ultimately leads to a welfare state: Technological development leads to the supply of new goods, which are bought and consumed by the population. This again leads to increases in the income streams of both the businesses and the state, which provide the seeds for further development (Rostow, 1959). In this context, growth driven by innovation is a necessary part of the development of an economy.

A necessity to grow, despite the consequences, has even influenced entire economies. Porter (1990) suggested that an economy of scale – achieved by growth – is a means of increasing the competitive advantage of a nation. In this belief, economic growth

achieved at any cost, characterized the Eastern nationalistic economies during the latter part of the 20th century (Krugman, 1994). The extraordinary growth rates caused impression, as well as fear and envy, among the leaders and policy makers in Western economies.

From a purely national point of view, growth is necessary, even crucial, for the development of an economy. However, similarities can also be found among firms. Steffens et al (2009) highlights some views of how firm growth may lead to higher profitability. Basic economic theory that assumes a U-shaped cost curve implies that a firm should grow until it reaches the point of minimum costs – and thereby maximizes profits (Besanko et al, 1996). After that point the cost per unit will again start to increase due to diseconomies of scale, and according to the theory, further growth will impair profitability. An L-shaped cost curve has been found to represent reality better (Besanko et al, 1996, 177), but the basic idea in both remains the same; an increase in output will until a certain level, decrease the average unit costs, thus increasing profits.

Experience curve

The notion of the experience curve is perhaps the most widely accepted strategy concept (Day & Montgomery, 1983; Amit, 1986). The notion started to gain a foothold in the 1960s, when it was generalized by the Boston Consulting Group (Day & Montgomery, 1986). The basic assumption of the experience cost curve is that for each increase in output the unit costs will decrease. Therefore, the business with the highest output will be able to produce with the lowest unit cost, leading to cost leadership (Amit, 1986). The firm with cost leadership will thereby enjoy the highest profit margins.

Despite the model being widely adopted within strategy research, Day and Montgomery (1983) criticize it. They argue that the model possesses a large potential for misinterpretation, due to three specific matters. First, the theoretical development of the model is criticized as being over-simplistic and based largely on three earlier studies, all within the same industry. Second, the lack of studies using alternative performance measurements is highlighted, and the authors discuss whether similar conclusions would be drawn with alternative measures. Third, the model's specification and evaluation is criticized for being too simplistic and not evaluated and redeveloped sufficiently. Many similarities can be drawn with the discussion on the multidimensionality of growth, and the problems of comparing growth, as discussed in chapter 5.1.

First-mover-advantage

The concept of first-mover-advantage (hereafter FMA) also builds on the idea of early growth leading to an increase in profits (Lieberman & Montgomery, 1988). The underlying assumption of FMA leading to profits is that being first and achieving early market acceptance will promote proprietary learning effects, patents, preemption of input factors, and the development of switching costs. By securing one, or several, of these resources a firm can manage to secure their position and

make new market entry more difficult, which is found to create a competitive advantage (Besanko et al, 1996).

However, it may be impossible to foresee whether pioneering and the acquirement of certain resources, will eventually lead to profit. Montgomery and Lieberman (1988) argue that the profits earned are "*fundamentally attributable to proficiency and luck, rather than 'pioneering' per se*" (Montgomery & Lieberman, 1988, 49). The authors argue that the potential advantages are created at such an early stage, that the potential value of the advantage is impossible to predict.

VanderWerf and Mahon (1997) studied the FMA-performance relationship in a meta-analysis of 90 individual tests. Of these studies a total of 71 (79%) showed a positive relationship and 54 (76%) of these were significant. However, when studies were combined for a meta-analysis the results were somewhat different. Strong significant support was found between FMA and market share. However, this support was not found for the relationship between FMA and relative growth nor profitability. Overall, the authors find that market share is not highly correlated with other performance measures, and that the effect of FMA is dependent on the performance measure adopted, and the industry and entrant type (VanderWerf & Mahon, 1997). As discussed earlier, the choice of performance measures affecting the study outcome have also been identified elsewhere (Delmar, 2006; Shepherd & Wiklund, 2009).

Network externalities

Finally, network externalities are proposed to have a positive impact on the relationship between growth and achieved profits. This notion builds on the view that, the utility a user derives from the consumption of a product, increases with the number of other consumers of the same product (Katz & Shapiro, 1985). In other words, when a large number of consumers use a product, it becomes relatively cheaper for them or for new customers to consume that product instead of one of the competitors. For the firm the cost of acquiring new customers decreases, therefore improving the profit margin. Similarly, existing customers will be retained for a longer duration, due to perceived higher switching cost.

The notion of network externality is closely related to the so called network effect in which "*the net value of an action...is affected by the number of agents taking equivalent actions*" (Liebowitz & Margolis, 1994, 135). Both these views build on a similar idea; fast growth and acquirement of a dominant market share, will create such network externalities that further attract potential new customers also to buy the product. Subsequently, as relative costs per customer decreases, the relative profit per unit increases.

5.2.2 The growth and profitability nexus in practice

The relationship between growth and profitability has been studied previously. Despite a pro-growth bias in entrepreneurship research, results on the growth and profitability relationship are inconclusive. Research results vary from showing that growth is a pre-requisite for profitability (Capon et al, 1990), to that growth and profitability move in parallel without a trade-off (Cowling, 2004). Some research finds no relationship between the two (Roper, 1999; Markman & Gartner, 2002).

Recent studies suggest that profits are the pre-requisite of further profitable growth (Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009). These results give a strong indication of something that is in direct contrast with the growth imperatives and growth illusions: *“the popular assumption that this is the norm is the very notion we challenge in this research”* (Davidsson et al, 2009, 7). The norm the authors are referring to is that high-growth is the pre-requisite of high profitability.

Davidsson et al (2009) use a data set of more than 5,000 Swedish and Australian SMEs to test any firms' movement in a 2 x 2 growth and profitability matrix (henceforth GPM, see figure two below). The firms studied represent the more traditional industries: manufacturing, property and business services, retail, wholesale, and governmental agencies. The Swedish sample does not include micro firms, and the Australian sample includes all firms with less than 200 employees. The Swedish data covers the years 1997-2000 and the Australian covers the years 1995-1998. Firms are divided into quartiles on each axis depending on their growth (relative sales growth) and profitability (ROA) in relation to the industry. Four different performance states are created: Poor (low-growth and low-profitability), growth (high-growth and low-profitability), profit (high-profitability and low-growth), and star (high-profitability and high-growth).

The results present strong evidence against the norm about high-growth leading to high profitability (Davidsson et al, 2009). Overall, firms in a profit state are up to three times more likely than growth-firms to become stars. In addition, the growth-firms are nearly three times as likely as profit-firms to fall into a poor position. Results are similar regardless of sample origin (Sweden or Australia), industry category, firm age, and firm size.

The study by Steffens et al (2009) has a similar aim as Davidsson et al (2009). In the same way, Steffens et al (2009) focus specifically on performance outcomes, and explore probabilistic rather than deterministic relationship between performance configurations. The study uses a sample of nearly 3,000 Australian firms employing less than 200 employees: manufacturing, property and business services, retail, wholesale, and governmental agencies. The data covers the years 1995 to 1998. Firms are categorized into a 3x3 GPM using relative sales growth and ROA. Instead of using quartiles, Steffens et al (2009) divides the performance into tri-tiles. Thereafter the frequencies of firms in the nine performance categories are examined depending on their age: young (≤ 8 years) and old (≥ 9 years).

The results by Steffens et al (2009) also advocate a more profit-oriented approach. Overall, young firms tend to set out more growth-oriented, a result also confirmed by Brännback et al (2010). Steffens et al (2009) find that young firms starting with a more growth-oriented approach tend to perform relatively poorly in comparison with profit-oriented firms. This supports the notion of misguided growth among start-up firms. In addition, profit-orientation among older firms was more likely to lead to future success, in comparison with growth-orientation. The authors conclude with: *"For researchers of strategic entrepreneurship, the paper highlights that growth-profitability of young firms remains a fertile area for research if one moves away from the simplistic analysis of factors assumed to universally lead to growth, and the assumption that growth unambiguously reflects good company performance"* (Steffens et al, 2009, 143).

Growth and profitability among Finnish high-technology firms

Inspired by the work by Davidsson et al (2009) and Steffens et al (2009), Brännback et al (2009) set out to examine the growth-profitability construct within the Finnish life-science sector. Their study focused on a sample of 90 young, privately-held firms within the life-science industry. Financial data was covered for the period of 2004 to 2006. Growth was conceptualized as relative sales growth, but instead of using ROA as a profitability measure (Davidsson et al, 2009; Steffens et al, 2009), Brännback et al (2009) used EBIT-to-sales ratio (EBIT). EBIT was preferred over ROA because life-science firms rarely require substantial assets. In addition, EBIT is mostly preferred by practitioners themselves (Kiviluoto et al, 2010; see chapter 8.5.2), and is found to be the best measure to capture the efficiency of the business model. Firms were categorized in a 2x2 GPM (see figure two below) depending whether they performed better or worse in relation to the sample median. Firms movements inside the GPM were then explored using a Markov chain analysis, a statistical approach that estimates the transition probabilities over time (Aaltonen & Östermark, 1998).

GROWTH	High	GROWTH	STAR
	Median	POOR	PROFIT
	Low		
		Low	High
		PROFITABILITY	

Figure 2: Growth and profitability matrix (GPM)

Source: Adapted from Davidsson et al (2009)

Despite a different estimation technique, a different data set, and a different time frame, results concur with Davidsson et al (2009) and Steffens et al (2009) (see table 7 below).

Indicator t	Indicator t+1				
	Star	Profit	Growth	Poor	Total
Star	0.519 (0.068)	0.204 (0.055)	0.074 (0.036)	0.204 (0.055)	1.000
Profit	0.298 (0.071)	0.489 (0.076)	0.021 (0.021)	0.191 (0.057)	1.000
Growth	0.179 (0.061)	0.103 (0.049)	0.385 (0.078)	0.333 (0.075)	1.000
Poor	0.200 (0.060)	0.111 (0.047)	0.348 (0.070)	0.370 (0.071)	1.000

Table 7: Transition probabilities for Finnish life-science firms (SE in parenthesis)

Source: Extracted from Brännback et al (2009).

Table 7 above shows the time homogeneous transition probabilities of Finnish life-science firms between the years 2004 and 2006. The left-hand column presents the state at time t, and the columns to the right shows the probability of making the transition to each state at t+1. Profit-firms (0.298) are nearly twice as likely, as growth-firms (0.179), to become stars. Likewise, growth-firms (0.333) are nearly twice as likely as profit-firms (0.191) to become poor-firms at t+1. The results also indicate that despite their state, firms are more likely to stay where they are, highlighting the importance of choosing the right kind of strategy from the beginning.

In a later exploratory study, Brännback et al (2010) focused on the high-growth myth of Finnish high-technology start-ups, including both bio and IT firms. Their results showed that younger firms operated with a growth-oriented strategy, while older firms were significantly more concerned about profitability. In addition, the study confirmed that high-technology firms do manage to grow, but fail to turn the increased revenues into profits. Most worryingly, Brännback et al (2010) confirmed the existence of a growth illusion and showed the effect it had on growth and profits. The study showed that firms that found *growth as a good measure of performance*, and saw *growth as proof of a good business model*, did in fact achieve significantly higher growth measured as a total five-year net revenue.

Conversely, firms that believed that *growth will eventually lead to profitability*, and that *a firm must grow in order to become profitable*, showed lower profitability. A negatively linear relationship was identified between the two arguments and achieved profitability. Profitability was measured as a five-year total operating result. A negatively linear relationship implies that the more the entrepreneurs agreed with the two statements (*growth will eventually lead to profitability*, and that *a firm must grow in order to become profitable*), the less profitable their firms were. In contrast, those who agreed the least with the two statements were the ones achieving highest absolute profitability (Brännback et al, 2010).

5.3 The state of growth entrepreneurship research

In March 2010, a special issue purely devoted to growth entrepreneurship was published in *Entrepreneurship: Theory & Practice* (Leitch et al, 2010a). The articles in the special issue, looking at growth from different perspectives, give an excellent overview of the current state of growth research. Based on a review of the five articles published, three specific factors emerge as characteristics of the field: (I) a lack of accumulated knowledge generation, (II) a fragmentation of the field, and (III) calls for holistic research.

5.3.1 A lack of accumulated knowledge generation

The advancement of research in growth entrepreneurship has been relatively slow: *“Even though there has been sustained interest in growth for almost 50 years, relatively little is known about this phenomenon and much confusion and misunderstanding surrounds it”* (Leitch et al, 2010a, 249). Similarly, McKelvie and Wiklund (2010) argue that *“Firm growth constitutes one of the central topics of entrepreneurship research. Despite substantial interest and massive empirical research, theoretical development in the field has been notably slow”* (McKelvie & Wiklund, 2010, 261).

Evidence towards a stagnated development process is evident through the continuing discussion on basic constructs of the field, such as measurement and definitional issues (Achtenagen et al, 2010). Measurement issues and techniques are suggested to be the most challenging and critical aspects of the field (Hofer & Bygrave, 1992).

However, a lack of accumulated knowledge generation may also be an outcome of too rapid growth in the field of entrepreneurship research. An indication for this can be seen through the continuous development of the stages models. Levie and Lichtenstein (2010) argue that the concept of the stages model has developed quickly, despite a lack of supporting research. They argue that the model gives a false representation of firm development:

In contrast to the biological foundations of stages models, we argued that organizations are not similar to organisms; they do not have a genetic code controlling their development. Far from it, organizations can anticipate and even co-create their environment, making internal shifts to fit current or projected changes Levie & Lichtenstein (2010, 336).

Penrose (1952) drew very similar conclusions almost 60 years ago, when she similarly criticized the use of biological analogies when studying firms:

We have no reason whatsoever for thinking that the growth pattern of a biological organism is willed by the organism itself. On the other hand, we have every reason for thinking that the growth of a firm is willed by those who make the decisions of the firm and are themselves part of the firm, and the proof of this lies in the fact that no one can describe the development of any

given firm or explain how it came to be the size it is except in terms of decisions taken by individual men (Penrose, 1952, 808).

The biological analogies, suggesting that firms grow like organisms, work as the basic foundation of the stages model. Despite strong critique against the use of biological analogies (Penrose, 1952; Levie & Lichtenstein, 2010), the stream of research has progressed over decades without anyone critically assessing its basic assumptions.

Secondly, the initial rather stagnant development over thirty years, followed by extremely rapid growth (see figure 1, chapter five) may have led to the fragmented research and inconclusive research results (Achtenagen et al, 2010; McKelvie & Wiklund, 2010). A development this rapid may hardly create an accumulation of empirical findings, as suggested being the mission of social science (Kuhn, 1970). More likely, it will create a number of emerging niches studied independently (Gartner et al, 2008; Grégoire et al, 2006).

5.3.2 The fragmentation of the field

Several authors point out the fragmentation of the field, and in what way it may have contributed to inconclusive research. Achtenagen et al (2010) argue that *“the growth literature is too fragmented”* (Achtenagen et al, 2010, 289), but also that *“the lack of a more integrated body of theory on growth might not only be the fragmented research findings, but a lack of theorizing in the first place”* (Achtenagen et al, 2010, 296). The same is also found by Leitch et al (2010a): *“many limitations of the extant knowledge and research in growth have been well documented, including the fragmented knowledge based and lack of integrative theory”* (Leitch et al, 2010a, 251). In line with these arguments, McKelvie and Wiklund (2010) argue that theoretical development in the field has been notably slow, while the fragmented theory base is evidenced by the pure impossibility of classifying and summarizing the growth literature in meaningful ways.

The fragmentation may be caused by several factors, but they can certainly occur due to the fact that entrepreneurship is an extremely heterogeneous phenomenon (Davidsson, 2005). Nonetheless, research findings and methodologies are used and cited as if they could all be comparable (Shepherd & Wiklund, 2010; Achtenagen et al, 2010). This suggests that researchers understand the field as more unified than it really is. When measures with low concurrent validity are regarded as comparable and used interchangeably, and often even used without proper justification (McKelvie & Wiklund, 2010), there is a danger of drawing false conclusions (Shepherd & Wiklund, 2010) and increasingly fragmenting the field (Cunningham & Lischeron, 1991; Gartner, 2001; Gartner et al, 2006; Reader & Watkins, 2006).

5.3.3 Calls for holistic research

Different authors emphasize the need for more holistic views when studying firm growth. The entrepreneurial process in itself is holistic (Hofer & Bygrave, 1992; Carson & Coviello, 1996). However, the absence of a more holistic view on firm growth is not a novel finding, as it has been already argued by Gibb and Davies (1990). Reaching a fully accurate explanation can be a pure impossibility given the heterogeneity of the phenomenon (Davidsson 2005; Leitch et al, 2010b). Nonetheless, a holistically influenced methodology may work as a tool for breaking the current boundaries and viewing the phenomenon in novel ways, both theoretically and empirically (Popper, 1959; Iacobucci & Rosa, 2010; Levie & Lichtenstein, 2010).

Leitch et al (2010b) mention the need to understand various stakeholder groups with an interest in firm growth and performance. In addition, Iacobucci & Rosa (2010) suggest that entrepreneurship would benefit from trying to examine phenomenon with approaches integrating a portfolio of theories, instead of trying to explain complex structures through a single theoretical lens. Hence, new ways of looking at old factors may be needed in order to deepen further our understanding of firm growth. Levie and Lichtenstein (2010) have taken a step in their research of the stages model. This thesis does the same when it comes to growth and profitability in entrepreneurship.

5.4 Literature summary

Before commencing with the first study of this thesis, it would be beneficial to summarize the major findings concerning growth entrepreneurship as discussed thus far, Nine major points have emerged and are worthy of restating.

1. The emergence of the prevailing growth mantra is difficult to understand. The works that has contributed significantly to the theoretical foundations of the field (Schumpeter, 1934; Penrose, 1959; Kirzner, 1973) are all concerned with one thing only, *profits*.
2. Profits are of crucial importance for both the firm (Kim & Mauborgne, 2000; Gilbert et al, 2006; Drucker, 2007), as well as for society (Venkataraman, 1997; Drucker, 2007). Profits act as the pre-requisite for further profitable growth (Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009).
3. Regardless of the central role of profits, the focus of research has shifted into a very different phenomenon, namely growth and high-growth (Davidsson & Delmar, 2006; Davidsson et al, 2007; Davidsson et al, 2009; Achtenagen et al, 2010).
4. Entrepreneurship literature is to a large degree focused on studying performance (March & Sutton, 1997; Cooper, 2005; Brush et al, 2008)
5. When it comes to determining what performance is, very little consensus seem to exist (Murphy et al, 1996; Brush et al, 2008; Richard et al; 2009; Kiviluoto et al, 2011). However, the word performance, which is mostly used synonymously to success, mostly refers to growth.

6. With regard to determining what growth is, very little consensus seem to exist (Weinzimmer et al, 1998; Delmar, 2006; Chandler et al, 2008).
7. Very few growth indicators are comparable with each other and the entrepreneurship research community seems to have failed to acknowledge this. This has lead to the research results often being dependent from the measures used (Murphy et al, 1996; VanderWerf & Mahon, 1997; Weinzimmer et al, 1998; Delmar, 2006; Achtenagen et al, 2010; Haltiwanger et al, 2010; Shepherd & Wiklund, 2010).
8. The growth entrepreneurship research is criticized for being fragmented, its research results are inconclusive and very little is known about the phenomenon overall (Achtenagen et al, 2010; Leitch et al, 2010a; McKelvie & Wiklund, 2010).
9. Calls have been made for research adopting more holistic views for a better understanding of complex phenomena (Gibb & Davies, 1990; Iacobucci & Rosa, 2010; Levie & Lichtenstein, 2010).

6 STUDY I - GROWTH AND PROFITABILITY IN ENTREPRENEURSHIP RESEARCH

As previously discussed, a shift from a profit-focus to a growth-focus has taken place in the entrepreneurship research community. The first study of this thesis will therefore consider this shift more explicitly, and show the need for rediscovering profit in entrepreneurship research. This is achieved through a literature review⁶ focusing on how performance, growth, and profitability are contextualized in the literature.

A number of reviews on performance and growth have been conducted previously (Brush & VanderWerf, 1992; Murphy et al, 1996; Delmar, 2006; Weinzimmer et al, 1998; Brush et al, 2008; Richard et al, 2009; Achtenagen et al, 2010). In contrast to the earlier reviews focusing on growth or performance, this review takes into consideration performance, growth, and profitability in order to acquire a holistic view of the research topics. The goal of the review is to challenge the current growth and profitability nexus within entrepreneurship research by answering the following major research questions:

Why is it justified to replace growth with profits in entrepreneurship research?

- a) What is the focus of the research; industries studied, dependent-, independent-, and control variables used?
- b) How is growth and profitability conceptualized and in what contexts are they both used?
- c) How is growth and profitability conceptualized among privately-held high-technology firms?

⁶ Parts of this review have been presented at the NFF 2009 and RENT 2009 conferences. The paper from RENT 2009 is published in the RENT Anthology (referred to as Kiviluoto et al, 2011).

6.1 Previous literature reviews

Table 8 shows some of the major characteristics of earlier reviews made about growth and performance: the selection criteria, journals, time frame, and the number of articles reviewed.

Author	Selection criteria	Journals ⁷	Time-frame	Number of articles reviewed
Brush & VanderWerf (1992)	Articles concerned with new venture performance	JSBM, JBV, FER	1987-1988	34
Murphy et al (1996)	Empirical, performance as dependent variable, small businesses and/or entrepreneurial ventures	Entrepreneurship journals, specifics not available	1987-1993	51
Delmar (2006)	Empirical, growth as dependent variable, small businesses and/or entrepreneurial ventures	JBV, ETP, RS, SBE	1989-1996	55
March & Sutton (1997)	Performance in the abstract	SMJ, AMJ, ASQ	1993-1995	439
Weinzimmer et al (1998)	Any research examining predictors of organizational growth	AMJ, ASQ, ASR, ETP, JBV, JOM, JOMS, JSBM, OSC, SMJ	1997-1998	35
Brush et al (2008)	Conceptual and empirical	ETP, JBV, ISBJ, SBE	2003-2005	389
Richard et al (2009)	Performance as a dependent variable	AMJ, ASQ, JIBS, JOM, SMJ	2005-2007	213
Shepherd & Wiklund (2009)	Growth as dependent variable, firm-level analysis, empirical	AMJ, ASQ, ASR, ETP, JBV, JOM, JOMS, JSBM, OSC, SMJ	1992-2006	82
Achtenagen et al (2010)	Growth in the title	ETP, JBV, ERD, ISBJ	1997-2008	56

Table 8: Earlier literature reviews on growth and performance

A fairly broad range of journals and hence a good representation of the literature have been used in earlier reviews, with a total number of 17 different journals represented. However, the publication timeframes of the reviewed articles are mostly

⁷ Journal abbreviations: Academy of Management Journal (AMJ), American Sociological Review (ASR), Administrative Science Quarterly (ASQ), Entrepreneurship and Regional Development (ERD), Entrepreneurship: Theory & Practice (ETP), Frontiers of Entrepreneurship Research (FER), International Small Business Journal (ISBJ), Journal of Business Venturing (JBV), Journal of Management (JOM), Journal of International Business Studies (JIBS), Journal of Management Studies (JOMS), Journal of Small Business Management (JSBM), Organization Science (OSC), Organization Studies (OS), Regional Studies (RS), Small Business Economics (SBE), Strategic Management Journal (SMJ)

short. Five of the nine reviews are concerned with articles published during a fairly short time frame, within three years or less. In addition, they are mostly conducted using fairly specific selection criteria: performance as a dependent variable (Murphy et al, 1996; Delmar, 2006) performance in the abstract (March & Sutton, 1997) or growth as a title word (Achtenagen et al, 2010). Subsequently, this review only used a few selection criteria a priori. This decision was made in order to obtain a better representation of the literature as a whole, without limiting the review only to certain types of articles.

6.2 Selection of journals

The journals selected for this review were partly self-selected and partly based on previous reviews. As table 8 above shows, three entrepreneurship journals are mostly represented in these reviews: ETP, JBV, and JSBM. This, and the fact that all three are among the most influential entrepreneurship journals worldwide, validated the selection of these journals.

In addition to only entrepreneurship journals, three management journals were chosen: SMJ, AMJ, and Research Policy (RP). All journals selected are peer-review journals and highly-ranked in the field. Only high-ranking journals were used in the review. This was done despite the critique of journal rankings and the measurement methods by which they are created; methods which have been suggested to lead to skewed representations of journals overall (Adler & Harzing, 2009; Giacalone, 2009; Nkomo, 2009; Özbilgin, 2009). The decision was made because highly-ranked journals are believed to have a larger impact and hence contribute more widely to the field. For example, an article written in a top-ranking journal is likely to be read by a larger number of scholars, which in turn will influence any new studies conducted and the accumulated flow of knowledge created (Kuhn, 1970). Therefore, the belief can be justified that these journals will offer a better representation of an entire field, in comparison to low-ranking journals.

6.3 Selection of articles

Various methods of sample selection were tried before finally arriving at the one found most useful for the purpose of this study. The first sample selection method was to conduct a keyword search directly through the databases where the journals were available (EBSCOhost, JSTOR, Wiley Interscience, and ScienceDirect). Searches were made using key words in the title and abstract (or the closest match to these criteria). The keywords used were growth, profitability, biotechnology, high-technology and all combinations of these. However, when using multiple word criteria the sample sizes became very small. Moreover, it resulted in an uneven distribution of articles between journals. Most disturbingly, exactly the same search criteria could not be used for all journals, as different databases have different

availability on pre-fixed criteria. These difficulties lead to the decision to use another method for the selection of articles.

In order to be able to make congruent searches between journals the decision was made to use the software Publish or Perish by Harzing (see figure 3 below). Publish or Perish is software, which creates statistics based on Google Scholar (Harzing, 2008). Google Scholar is free of charge and offers the majority of functions that its' costly alternative, such as the ISI Web of Science (Jacsó, 2005) offer. When using Publish or Perish all searches (limited to 1000 by the software) are directly transferable to, for example, Microsoft Excel for further quantitative analysis. Although Google Scholar is sometimes criticized for including non-academic citations, and for not including all journals (Harzing, 2008), the journals selected for this review were available in Google Scholar and hence it was possible to use the software.

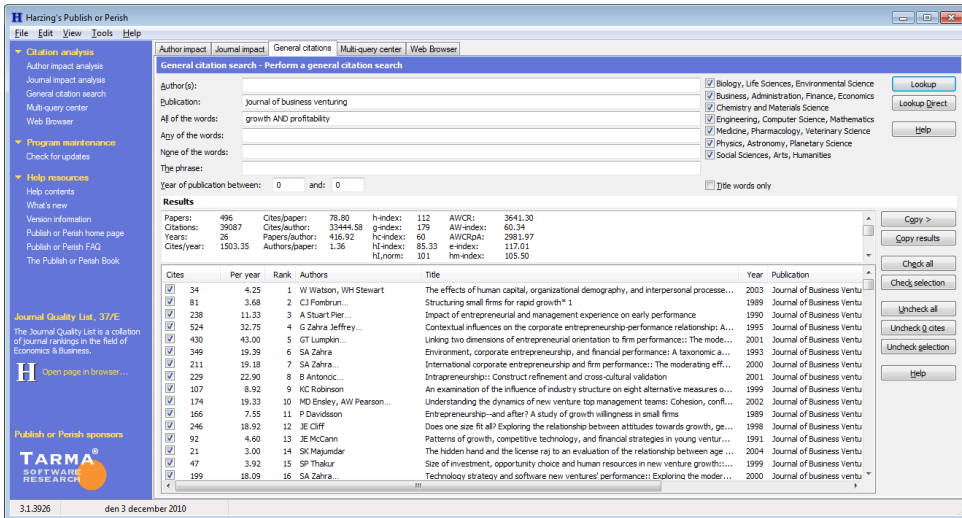


Figure 3: Harzing Publish or Perish database

The second article selection method was made by including the keywords growth, profitability, biotechnology, and high-technology and all combinations of these. All searches were made separately for each journal and then exported to Excel. From the total sample of 15,376 articles, those with less than 50 citations were excluded, resulting in a sample of 4.368 articles. The search from Publish or Perish may also include duplicates, depending on whether the journal is available in many databases or if the articles details are entered into the databases in different ways. After removing these duplicates, a total of 1,249 articles remained. A closer examination of the articles showed great variations in the topics concerned, and also great variations between the number of citations and journals; the most cited article in SMJ had 6,303 citations in comparison with the most cited in JSBM with 87 citations. Therefore, the decision to use less specific search criteria was made.

The third method of sampling was made by including articles that fulfilled the three following keyword criteria: growth *and* profitability *or* performance *and* biotechnology *or* high-technology. Articles were once again sorted by citation, and once duplicates were excluded a sample size of 1,258 articles remained. After reviewing the title and abstract, a cut-off point at 30 citations was chosen. However, the same problem as in the second sampling method remained i.e. large differences in the number of citations between the articles in different journals. Additionally, the way the keywords existed in the articles was incoherent. Therefore, the fourth and final method of sampling was chosen.

In the fourth method of sampling, the decision was made not to include the industry in the search criteria. This decision was made because industry was found to skew the sample; the keyword may have been in the list of references instead of being a focus of research. The final keyword criteria used was growth *and* profitability *or* growth *and* performance. Only including these, instead of also an industry, would give a better representation of the literature as a whole. After removing duplicates, the sample size was 3,032 articles. In order to overcome the uneven distribution of the number of citations in the journals, articles were ranked according to their relevance instead of the number of citations. The relevance-ranking is a method by Google Scholar that weighs the keywords with the full text of each article, the author, the publication and citations (Google Scholar, 2009)⁸. The ranking system was a beta-version by Google and therefore the relevance of the articles were assessed by two researchers by reading the title, abstract and introduction of the articles.

The articles were read one journal at a time, and once both researchers agreed on the selection of the relevant articles, the process continued. The articles had to be empirical and focus on growth, performance, and/or profitability. Finally, the Research Policy Journal was entirely excluded, as the reviewed articles were not focused at the level of the firm. This initial relevance screening reduced the sample size to 118 articles, which were selected for further review.

Technically, the review was conducted in Microsoft Excel. All articles were given a spreadsheet row, and then columns were provided for each subject studied. This finally constituted a large table, 118 rows x 84 columns, including all the quantitative and qualitative data extracted from the articles. Conducting the analysis on a spreadsheet allowed combinations of qualitative and quantitative analyzes to be made. Considering the relatively large sample size, this method of analysis significantly improved efficiency. Once the table was created in a spreadsheet, a large number of quantitative analyses could be made by using various filtering selections and formulas. For example, making only a few selections allows filtering out the articles published in a specific year, in a certain journal, and which used a certain measure of performance. The analysis could have been conducted using other software designed specifically for qualitative analysis, e.g. QSR NVivo, but the decision to use Excel was due to familiarity, software availability, and most importantly, software versatility.

⁸ Google does not provide a more accurate description of the criteria used by the relevance-rank.

6.4 Overall characteristics of the reviewed articles

The first aim of the review is to obtain an overview of the contextual factors of the studied articles; when are the studies conducted, what is being studied, and in what contexts.

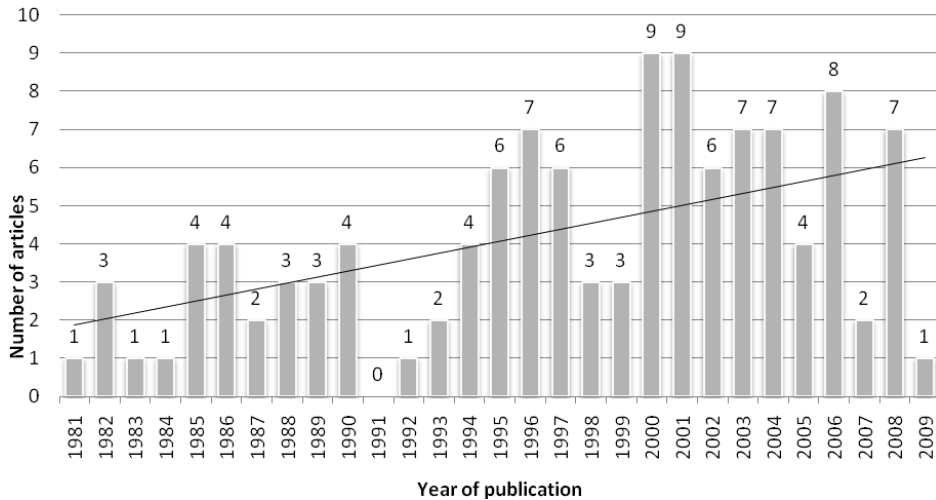


Figure 4: Annual distribution of articles

Figure 4 above shows the annual distribution of the articles selected for review. All articles were published between 1981 and 2009. The linear trend line in the graph shows a growing trend in the number of articles published. Although the increase is not as rapid as when looking at the citations to Penrose (1959, see figure 1, chapter five), an indication of a growing trend can be identified. Interestingly, a slight peak can be seen around the millennia-shift during the time of the IT-bubble.

Table 9 below shows the distribution of articles between the five journals. Nearly a third of the articles are published in JBV (38, 32%), followed by SMJ (21%). These two journals account for more than half of the articles published. These two are followed by JSBM (22, 19%), AOM (19, 16%), and ETP (14, 12%).

Journal	N	%
JBV	38	32,2 %
SMJ	25	21,2 %
JSBM	22	18,6 %
AOM	19	16,1 %
ETP	14	11,9 %
TOTAL	118	100,0 %

Table 9: Article distribution between journals

Sample characteristics

Industry	N	%
Manufacturing/retail/service	43	36,4 %
Various	37	31,4 %
High-tech	22	18,6 %
n/a	9	7,6 %
Industrial	7	5,9 %
Total	118	100,0 %

Table 10: Industries studied

Table 10 shows the industries studied. The most commonly studied industries are those of manufacturing, retail, and services, which are studied in 43 articles (36%). In 37 articles the sample consists of various industries (31%) followed by high-technology in 22 articles (19%). In nine articles (8%) the industry is not available and finally in seven articles (6%) the sample consists of industrial firms, without a closer specification being available. A total of 30 articles (25%) are concerned with studying a single industry. This figure needs to be interpreted with some caution, as it may often remain unclear how homogeneous the sample is despite the focus on a single industry, e.g. manufacturing can refer to quite a heterogeneous sample of firms. On the other hand, single-industry focus allows some control for external factors (Davidsson, 2005).

Nr of variables	Nr of articles	% of articles
1	85	72,0 %
2	21	17,8 %
3	6	5,1 %
4	3	2,5 %
5<	3	2,5 %
Total	118	100,0 %

Table 11: Number of dependent variables used

Table 11 above shows the number of dependent variables used in the articles. The large majority (85, 72%) uses one dependent variable, while two variables are used in 21 articles (18%). Approximately 10 % of the articles (12) use three or more dependent variables. These numbers should be interpreted with caution, as many times it can be difficult to assess the actual number of dependent variables. Sometimes several variables are used as dependent variables, but they are all transformed into a single-item when conducting the analysis.

Dependent variable	N	% of studies
Growth	59	50,0 %
Performance	49	41,5 %
Profitability	21	17,8 %
Other*	10	8,5 %
Growth & profitability	10	8,5 %
Growth & performance	5	4,2 %
Total	154	-

* strategic change, structural differences, innovation, financing, acquisitions, supplier related, market value

Table 12: Dependent variables used

Table 12 above shows the dependent variables used overall. The total of 154 variables, in only 118 articles, is explained by the fact that a number of articles used more than one dependent variable (see table 11). In half of the studies growth is used as a dependent variable (59, 50%), followed by performance (49, 42%) and profitability (21, 18%). Both growth and profitability are used in 10 articles (9%), while growth and performance are used as dependent variables in five articles (4%). In comparison to earlier reviews (March & Sutton, 1997; Brush et al, 2008) this sample has a significantly higher share of articles focusing on different forms of performance. This share can be explained with the used sample selection criteria.

Table 13 below shows the number of independent variables used in the studies. It is apparent that there is no clear preference for a certain number of variables, but that instead several of them are being used to test their predictive power on the dependent variable. Only one variable is used in 28 articles (24%), followed by two (35, 30%), three (23, 29%) and four independent variables (12, 10%). In 20 articles (17%) more than five independent variables are used. The same type of caution is suggested here when interpreting the number, as was for the interpretation of dependent variables. This number reflects the themes that are used as independent variables, instead of the actual number of measures used. For example, an article using strategy, planning, and competition as their major themes for predicting performance is interpreted as three independent variables regardless of how many actual measures are used for the prediction. There would be no point in counting the exact number of measures used, as one study may measure for example, the concept of planning with two variables, while another may use 20 for the same purpose.

Nr. of variables	Nr. of articles	% of articles
1	28	23,7 %
2	35	29,7 %
3	23	19,5 %
4	12	10,2 %
5<	20	16,9 %
TOTAL	118	100,0 %

Table 13: Number of independent variables

Table 14 below shows the independent variables used. There is no clear over-representation of certain independent variables, and hence a broad variation in

independent variables exists. The most common independent variables are related to internal resources (27, 23%), followed by strategy related (26, 22%), growth related (22, 19%), entrepreneur or management related (21, 18%), and industry related (16, 14%).

Independent variables	Nr. Of articles	% of articles
Internal resources	27	22,9 %
Strategy related	26	22,0 %
Growth/indirect growth	22	18,6 %
Entrepreneur/management related	21	17,8 %
Industry related	16	13,6 %
Planning	12	10,2 %
External resources	11	9,3 %
Entrepreneurial orientation	9	7,6 %
Performance	6	5,1 %
Product life cycle	5	4,2 %
Profitability	2	1,7 %
Corporate social responsibility	2	1,7 %
Total	159	-

Table 14: Independent variables

Nr. of control variables	Nr. of articles	% of articles
0*	39	33,1 %
1	14	11,9 %
2	19	16,1 %
3	14	11,9 %
4	15	12,7 %
5	10	8,5 %
6<	7	5,9 %
Total	118	100,0 %

* Possible that IV's are used for control or through selection of sample

Table 15: Number of control variables

Table 15 above shows the number of control variables used. In a surprisingly large majority (39, 33%) no control variables are used. However, in these cases it is possible that some of the independent variables are used as control variables. It is also possible that control is done through a priori selecting a more homogeneous sample, e.g. as shown before 25% of the articles are focused on a single industry. Overall, the distribution between the numbers of control variables is fairly even; one variable is used in 14 articles (12%), two in 19 articles, (16%), three in 14 articles (12%), four in 15 (13%) articles and five in 10 articles (9%). More than six control variables are use in 7 articles (6%).

Table 16 below shows the most common control variables. An absolute majority controls for the firm's age, which is done in a total of 113 articles (96%). Firm age is followed by firm size (46, 39%) and industry (32, 27%). In comparison, Murphy et al (1996) found that 29% controlled for firm age, while 46% controlled for industry,

which according to the authors was a worryingly small number. The 27% in this study is somewhat surprising taking into consideration, that only 25% of the articles are concerned with a single industry. Depending on sample distributions, the lack of controlling for industry effect carries a danger of potentially affecting the results, for example, if one industry is over-represented. Industry-level factors have been found to affect significantly the performance levels (Covin et al, 1990), therefore it is necessary to control for this variation.

Control variables	N	% of articles
Firm age	113	95,8 %
Firm size	46	39,0 %
Industry	32	27,1 %
Environmental	9	7,6 %
Performance related	8	6,8 %
Industry growth	7	5,9 %
Capital related	5	4,2 %

Table 16: Control variables

Measures of performance

The second aim of this review is to see how performance, growth, and profitability is being studied and conceptualized in the literature.

Measurement type	N	%
Objective	84	71,2 %
Subjective	29	24,6 %
Subjective & objective	5	4,2 %
Total	118	100,0 %

Table 17: Subjective and objective measures

Table 17 above shows the tendency to use subjective and objective measures. The large majority use objective measures of performance (84, 71%), while subjective measures are used in 29 articles (25%), concurring with the 26% found by Richard et al (2009). Other studies have identified the use of subjective measures from 13% (Delmar, 2006), to as high as 75% (Murphy et al, 1996). In addition to using either subjective or objective measures, a small number of articles use a combination of both (5, 4%).

Performance measures	N	% of articles
Sales growth	72	61,0 %
Profitability/ Accounting based *	67	56,8 %
Employment growth	21	17,8 %
Market share growth	8	6,8 %
Other**	4	3,4 %
Total	182	-

*ebit, ros, roe, roi, roa, roc. ** nr of franchises growth, growth option value, loss ratio, own determination

Table 18: Performance measures

Table 18 above shows how performance is conceptualized in all the articles, regardless of whether it is used as a dependent variable, an independent variable, or a control variable. In 72 articles (61%) performance refers to sales growth, but in nearly as many (67, 57%), performance refers to profitability. In 21 articles (18%), performance refers to employment growth, and in eight articles (7%) market share is used as a measure of performance. Respectively, Murphy et al (1996) found that performance referred to growth (23%), profitability (21%) and market share (4%). The most common performance measure Murphy et al (1996) identified was efficiency (24%). However, efficiency as referred to in their study is coded as profitability/accounting based in this study.

Table 19 below on the other hand shows how growth per se is conceptualized. In 47 articles (40%) growth is conceptualized as sales or revenue growth followed by performance conceptualized as growth (38, 32%). Performance conceptualized as growth refers to articles that state that growth is the performance measure used. A total of 18 articles (15%) do not use a growth measure while 15 articles (13%) conceptualize growth as employment growth. Only two articles (1.7%) use market share as their growth measure. In earlier reviews, the share of articles conceptualizing growth as sales growth has varied between 31% and 85%. In addition, the proportion of articles conceptualizing growth as employment growth has varied between 16% and 29% (Weinzimmer et al, 1998; Delmar, 2006; Shepherd & Wiklund, 2009; Achtenagen et al, 2010, see table three, chapter 5.1.1). Therefore, the results of this study concur with earlier studies.

Growth measure	N	% of studies
Sales/revenue	47	39,8 %
Growth as performance	38	32,2 %
None/n.a	18	15,3 %
employment	15	12,7 %
Other*	4	3,4 %
Market share	2	1,7 %
TOTAL	124	

* nr of franchisees growth, growth option value, loss ratio, own determination

Table 19: Growth measures

Earlier reviews (Murphy et al, 1996; March & Sutton, 1997; Richard et al, 2009) have specifically examined articles that use performance as a dependent variable. A similar analysis is conducted here. For clarification, only those articles that use a single dependent variable are chosen, thus decreasing the sample to 85 articles.

Table 20 below shows the single dependent variables. In 42 of these articles (49%) performance is the dependent variable, followed by growth in 33 articles (39%). Profitability is the single dependent variable in only 8 articles (9%). Two of the eight articles are concerned with privately-held firms (Palepu, 1985; Rue & Ibrahim, 1998).

The article by Rue and Ibrahim (1998) is also concerned with small firms, while firm size is not available in Palepu (1985).

Variable	Nr. of articles	%
Performance	42	49,4 %
Growth	33	38,8 %
Profitability	8	9,4 %
Other*	2	2,4 %
Total	85	100,0 %

* strategic change, type of entrepreneur

Table 20: Performance measures for single dependent variables

6.5 Growth and profitability

As shown earlier in table 18, the two most used measures of performance are growth and profitability. Table 21 below shows the number of articles where both growth and profitability are used. In those 72 articles where sales growth is used, a total of 33 (46%) also measures profitability. In those 21 articles where employment growth is used, a total of seven also (33%) use profitability. In the eight articles that uses market share growth, six (75%) also uses profitability. Overall, in the 101 articles where a growth measure is used, in less than half (46%), a profitability measure is also used.

Regardless of the fact that in more than half of the articles profitability is not discussed, an equally worrying aspect is the lack of justification. The selection of performance measures is mostly dependent on data availability, instead of data suitability; an argument also made previously (Hayek, 1974; Shepherd & Wiklund, 2009; Haltiwanger et al, 2010). This creates a bias towards preferring the use of certain databases and studying only publicly-traded firm. In a study of internet companies' growth strategies Eisenmann (2006) states: "*Studying publicly traded firms facilitated the collection of financial and valuation data*" (Eisenmann, 2006, 1187). When multiple measures are used, their relationship is rarely acknowledged or discussed, apart from some exemplary discussions (see for example Zahra, 1996; Zahra et al, 2002).

Measure	N	%
Sales/revenue growth	72	
profitability	33	45,8 %
Employment growth	21	
profitability	7	33,3 %
Market share growth	8	
profitability	6	75,0 %
Total growth measures	101	
Total profitability measures	46	45,5 %

Table 21: Articles with growth and profitability measures

As shown earlier in table 12, there are a total of 10 articles that use both growth and profitability as dependent variables, and an additional five articles, that use growth and performance as a dependent variable. Out of these five, three conceptualize performance as profitability adding up to a total of 13 articles that are concerned with growth and profitability. In addition, there were 49 articles that only used *performance* as their dependent variable. Of these 49 articles, 20 have measures of both growth and profitability, resulting in a total of 33 articles that use both growth and profitability as a dependent variable (see table 22 below).

Authors	Public ation	Private/ Public	Database *	Firm size **	Industry	Growth measure	Profitability measure
Davidsson et al. (2009)	JBV	Private	Australian Bureau of census, Statistics Sweden	SMEs	Sweden: Manufacturing, Prop. /bus. Serv., retail, wholesale, other service. Australia: mining, government enterprises, utilities and public services + others	Sales growth %	ROA
Shraeder and Siegel (2007)	EIP	Public	Compustat	Small	High-tech	Sales growth %	ROI, ROS, ROA
Coleman (2007)	JSBM	Private	Survey of Business Finances	Small	Service and retail	Sales growth %	ROS
Wolff and Pett (2006)	JSBM	Private	Various	SMEs	Manufacturing	Self-reported (5-point Likert): Sales growth %	Self-reported (5-point Likert): ROS, ROA creation of new products or services
Amason et al. (2006)	JBV	Public	Compustat	Large	High-potential new ventures	Sales growth %	ROS, ROE, ROA
Wiklund and Shepherd (2005)	JBV	Private	UC-Select	Small	n/a	Self-reported employment	Self-reported gross margin, profitability, cashflow in relation to competition
Florin (2005)	JBV	Private/ Public	n/a	Small	n/a	absolute sales and assets growth	ROS, ROA and income.
Cho and Pucik (2005)	SMJ	Public	Fortune 1000	n/a	Various	CAGR of total assets, total revenues and market capitalization	ROA, ROE, ROI (+market performance measures: market-to-book ratio, Tobin's q ratio)
Florin et al. (2003)	AoM	Private/ Public	"high-growth potential ventures"	n/a	high-tech, specifics n/a	Sales growth %	ROS
Watson et al. (2003)	JBV	Private	n/a	Small	n/a	Self-reported yes/no	Self-reported yes/no
Zahra et al. (2002)	EIP	Private	n/a	start-ups	manufacturing	Self-reported sales and employment	ROE+ self-reported ROI, ROE, ROA, net profit margin
Markkman and Gartner (2002)	EIP	Private	Inc. 500	Various	Service, manufacturing, distribution, retail	Sales and employment; absolute and relative	Profit ratio (6-point scale)
Ensley et al. (2002)	JBV	Private	Inc. 500	Various	Various	Cumulative sales growth	Profit ratio (6-point scale)
MaMahon (2001)	JSBM	Private	Australian manufacturing Council	SMEs	Manufacturing	Self-reported past and future sales (6-point scale)	Profitability in relation to competition (3-point scale)
Li and Atuahene-Gima (2001)	AoM	Private	n/a	start-ups	high-technology	Self-reported sales %	Self-reported ROI, ROS, ROA, profit growth,
Zahra et al. (2000)	AoM	Private/ Public	n/a	Start-ups	Various (many high-tech)	Sales growth %	ROE
Zahra and Garvis (2000)	JBV	Public	Compustat, Fortune 500, Global Business 1000, Forbes	Various	20 manufacturing industries	Self-reported growth in relation to competition	Self-reported ROA
Brush et al. (2000)	SMJ	Public	Compustat database	n/a	n/a	Sales growth %	ROA, return-to-stockholders

Robinson (1998)	JBV	Public	Compustat, Dun and Bradstreet	Various, mainly manufacturing, but also bio, medical instruments,	Sales growth %, sales level, Self-reported sales growth in relation to competition	net profit, EBIT, ROS, ROA, ROIC, ROE
Bantel (1998)	JBV	Private	n/a	Small	Sales growth %	Self-reported profitability in relation to competition
Bloodgood et al (1996)	ETIP	Public	n/a	Large	Various	EBIT
Zahra (1996)	JBV	Private/Pu blic	Various	start-ups	Objective sales growth and market share growth, self-reported sales growth and market share	Objective: ROE + self-reported ROI, ROE, ROA, Net profit margin
Lumpkin and Dess (1995)	AoM	n/a	n/a	Various	Self-reported Sales growth %	Self-reported profitability and ROI
McMahon and Davies (1994)	JSBM	Private	Australian manufacturing Council	Small	Self-reported sales and employment, sales/employee	Self-reported net profit, Net margin on sales, net profit per employee
Willard et al (1992)	JBV	Public	Inc.100	Various	CAGR, sales	net income, ROS, ROE
Covin et al (1990)	JBV	Private	n/a	SME	Self-reported sales level, sales growth %	Self-reported cash flow, return on shareholder equity, gross profit margin, net profit from operations, profit-to-sales ratio, ROI and ability to fund business growth from profits
Birley and Westhead (1990)	SMJ	Private	Cranfield Small Firms Database	Small	High-technology and low-tech service, manufacturing, construction	trading profit
Shrader et al (1989)	JSBM	Private/Pu blic	Dun and Bradstreet Fortune 1000, Compustat	Small	Self-reported sales and employment increase/decrease	Self-reported after-tax profit increase/decrease
McGuire et al (1988)	AoM	Public	Fortune 1000, Compustat	Large	Sales growth %, asset growth %	ROA, Operating income growth
Pearce II et al (1987)	SMJ	Private	All manufacturing firms within a state	SMEs	Self-reported in relation to industry: sales growth over past years	Self-reported ROA and ROS+ in relation to industry (5-point scale)
Open (1985)	JSBM	Private	n/a	Small	Self-reported sales growth %	Self-reported ROA
Miller and Friesen (1982)	AoM	n/a	Australian and American databases	Medium-sized	Self-reported sales increase/decrease	Self-reported ROI increase/decrease
Christensen and Montgomery (1981)	SMJ	Public	Fortune 500 firms	n/a	Sales growth, EPS, market share, weighted industry ROA and ROE	EPS, ROIC, ROA, ROE, (+market share, weighted industry ROA and ROE)

*Database refers to whether or not a certain database was used to extract data. n/a refer to both non-available data, or data that was not extracted from any specific database

** Firm size refers to the size of firms studies. Start-up refers to studies where size was not available but the focus has been on studies with firms less than 8 years old.

Table 22: Growth and profitability as a dependent variable (n: 33)

Table 22 above shows all those 33 articles where both growth and profitability are used as dependent variables, sorted by year of publication. Most of the articles are published in *JBV* (12, 36%), followed by *JSBM* (6, 18%), *AOM* (6, 18%), *SMJ* (5, 15%) and *ETP* (4, 12%). The distribution of the articles between journals is very close to the distribution of articles in the entire reviewed sample of 118 articles (see table 9, chapter 6.4).

6.5.1 Sample characteristics

Out of the 33 articles using both growth and profitability as dependent variable, 16 (49%) are concerned with privately-held firms. Publicly-traded firms are studied in ten articles (30%) and in four articles (12%) the study is concerned with both privately-held and publicly-traded firms. In seven articles (21%), the firms' studied are extracted from so called success-lists, e.g. *Inc.* and *Fortune* lists.

Assessing the size of the firms studied is difficult due to differences in size-categorizations between countries. In ten articles (30%), the authors state that they are concerned with small firms. In five articles (15%), the study focus is on SMEs and in four articles (12%) the focus is on start-ups. Start-up refers here to cases where the firm size was not available, but the study was concerned with firms less than eight years old. According to the EU definition, a small firm is one that employs less than 50 people. This definition is used by Davisson et al (2009), but also other definitions on SME's are used. In some articles, small refers to a firm with less than 300 employees (McMahon, 2001), or less than 500 employees (Pearce II et al, 1987; Covin et al, 1990; Coleman, 2007). For example in Orpen (1985) the focus is on small firms, but there is no clarification of what a small firm is.

In only three studies, the study samples do also include micro firms (Coleman, 2007; Wolff & Pett, 2006; Birley & Westhead, 1990). However, in Birley and Westhead (1990) the mean size of the firms in the sample is 32 employees, while Wolff and Pett (2006) categorizes firms in five classes according to their size. In their study, the mean is 2.74, when 2 equals firms with 25-49 employees, and three equals firms with 50-149 employees.

The almost complete lack of studies on micro firms, i.e. according to the EU definition firms with less than 10 employees, is noticeable. It is these firms that are, after all, the large majority in an economy; in 2008 94.4% of the total number of 320.952 firms in Finland were micro firms, while the average share of micro firms in the EU was 91.8% (FinStat, 2009; Schmiemann, 2008). Therefore, one might assume that entrepreneurship research would also focus specifically on these firms. The studies reviewed show that this does not seem to be the case.

6.5.2 Performance measures

All the 33 articles use both growth and profitability measures, as measures of performance when testing their models. The growth and profitability measures used can be seen in the last two columns of table 22 above. Relative sales growth is used as a growth measure in all of the articles. In addition to only sales growth, a number of articles also use other growth measures. The profitability measures used are traditional accounting-based measures (such as ROA, ROC, ROE, ROI, and ROS).

The large number of measures used in certain studies depends on the fact that the study context is on publicly-traded firms, or that self-reported measures have been used. Once collecting self-reported performance estimates in a survey, the respondent can be asked to answer several questions, therefore allowing the use of various measures in the tested models.

Overall, large variations exist in the conceptualization of growth and profitability, especially when it comes to time frames and measurement methods. The studies on privately-held firms mostly measure performance using subjective, self-reported measures. Of the 16 articles that focus on privately-held firms, four use measures that are not self-reported (Ensley et al, 2002; Markman & Gartner, 2002; Coleman, 2007; Davidsson et al, 2009). However, two of these articles (Ensley et al, 2002; Markman & Gartner, 2002) use the Inc. database, which does not provide exact profitability measures, but instead a profitability categorization.

There are also large variations in the measurement methods for the subjective, self-reported measures. For example, some measures ask for exact figures, some ask for the subjective performance in relation to competition, and some are solely an increase/decrease indication. Some measure performance solely based on a yes/no indication, some uses past and future performance estimates, while some asks for average performance estimates during a specific number of years.

6.5.3 Growth and profitability relationship

Despite the fact that there are 33 articles that uses both growth and profitability measure, very few are concerned with the actual relationship between the two. Out of the 33 articles, only two articles are specifically concerned with studying the relationship between growth and profitability (Markman & Gartner, 2002; Davidsson et al, 2009). In addition, one article includes the growth and profitability relationship as one of the hypothesis in their model (Wolff & Pett, 2006).

Growth and profitability measures are mostly used in statistical models, but little or no consideration is given to the fact that frequently the model only explains one of them. Growth and profitability are merely seen as equivalent measures of outcome. Robinson (1998) is among the few studies that see growth and profitability as completely distinct, and Zahra (2002) acknowledges the potential trade-off between the two.

The difficulty of measuring small firm performance is acknowledged in some articles (Birley & Westhead, 1990; Bantel, 1998; Robinson, 1998; Zahra, 2002). This difficulty can be based on the difficulty of getting access to firms, the reluctance of the respondents to provide the data, or because the data obtained is found unreliable (Birley & Westhead, 1990; Covin et al, 1990; Bantel, 1998). These reasons are found to justify the choice of studying publicly-traded firms, instead of privately-held: *“Studying publicly traded firms facilitated the collection of financial and valuation data”* (Eisenmann, 2006). However, it may also be evidence of a strong reliance on convenience sampling.

Small firm performance is multidimensional (Zahra, 2002), and particularly profitability measures can be difficult to obtain due to the eight years it may take for a start-up to reach profitability (Bantel, 1998). Bloodgood (1996) mentions that there is little consensus in how new ventures should be evaluated. Ensley et al (2002), on the other hand, argues that sales growth is the single most important measure of new venture performance. Small firm performance may vary due to varying goals of the entrepreneurs, asset basis, capital structure, stockholder views, and market condition (Bantel, 1998; Feeser & Willard, 1990). Therefore, a more holistic view may be necessary in order to study growth and profitability and as a method of capturing the underlying complexity that finally leads to certain performance outcomes.

Perhaps the most worrying convention identified, is that generally the studies completely lack any reasoning as to why a certain performance measure is used (Birley & Westhead, 1990; Robinson, 1998): *“An even more surprising omission in most of the literature is a complete absence of any discussion of an appropriate measure of growth”* (Birley & Westhead, 1990, 539). Even if Birley and Westhead (1990) refer solely to growth, the same holds true for performance measures in general. The use of a certain performance measure is often justified by its use in another study, without further consideration of the contextual factors or the transferability of the measures.

6.6 Performance in privately-held high-technology firms

The third and final aim of this review was to explore how performance is conceptualized among privately-held high-technology firms. Table 23 below presents all the articles that are either solely or partly concerned with industries that can be considered high-technology. A total number of 22 articles (19%) are concerned with high-technology. High-technology in the articles may refer to a single industry such as biotech (Zahra, 1996), but it may also refer to a selection of 13, 16 or even 35 different sectors (Bantel, 1998; Baum et al, 2000; Baum & Silverman, 2004).

The majority of the articles are published in JBV (9, 41%), followed by four articles (18%) in each AOM, ETP, and SMJ, and one in JSBM (5%). Out of these 22 articles, ten (45%) are concerned with privately-held firms. In addition, in four (18%) articles the sample consists of both privately-held and publicly-traded firms. The dependent

variables used are performance (13, 59%), growth (6, 27%), profitability (2, 9%), and one is concerned with relations between suppliers.

Author	Journal	DV	Industry	Private/public	Firm size	Growth measure	Profitability measure
Shrader and Siegel (2007)	ETP	Performance	High-tech	Public	Small	Sales growth %	ROI, ROS, ROA
Collins and Smith (2006)	AoM	Performance	High-tech	n/a	Large	Sales growth %	
Amason et al (2006)	JBV	Performance	High-potential new ventures	Public	Large	Sales growth %	ROS, ROE, ROA *
Eisenmann (2006)	SMJ	Profitability	Internet companies	Public	n/a		ROI
Baum and Silverman (2004)	JBV	Performance	Biotech (13 sectors)	Private	Start-ups, SMEs	Absolute sales growth, employment growth % *	
Beekman and Robinson (2004)	JSBM	Supplier relations	Pharmaceutical-related companies	Public/Private	SMEs	Sales growth % (secondary data and self-reported)	
Florin et al (2003)	AoM	Growth	High-tech, specifics n/a	Pre-/ post-IPO	Large	Sales growth %	ROS
Reuber and Fischer (2002)	ETP	Growth	Software, food processing	Private	Mostly SMEs	Self-reported sales %	
Barton and Rubanik (2002)	JBV	Growth	High-tech	Private	Start-ups	employment growth %	
Li and Atuahene-Gima (2001)	AoM	Performance	High-tech	Private	Start-ups	Self-reported sales %	Self-reported ROI, ROS, ROA, profit growth *
Zahra et al (2000)	AoM	Performance	Various high-tech	Private/Public	Start-ups	Sales growth %	ROE
Zahra and Bogner (1999)	JBV	Performance	software	Private	Start-ups	self-reported market share growth	self-reported ROE *
Baum et al (2000)	SMJ	Performance	Biotechnology (16 sectors)	Private	Start-ups	Sales growth %, R&D spending %, non-R&D employment growth *	
Bantel (1998)	JBV	Performance	Technology based industries (35 different)	Private	Small start-ups	self-reported sales growth %	self-reported profitability *
Zahra (1996)	JBV	Performance	Biotech	Private	Start-ups	self-reported sales growth and market share growth	Self-reported ROE
Westhead (1995)	ETP	Growth	High-tech	Private	n/a	self-reported absolute employment growth *	
Hanks et al (1993)	ETP	Growth	High-tech	Private	SMEs, young	self-reported adjusted employment growth rate ((total employees 87-total employees 86)/total employees 87)	net income, ROS, ROE *
Willard et al (1992)	JBV	Performance	High-technology manufacturing	Public	All	CAGR, sales	
Covin et al (1990)	JBV	Growth and performance	High-technology and low-tech	Private	SME	Self-reported sales level, sales growth %	Self-reported cash flow, return on shareholder equity, gross profit margin, net

Feeser and Willard (1990)	SMJ	Growth	High-tech	Public	All	Sales growth %	profit from operations, profit-to-sales ratio, ROI and ability to fund business growth from profits		
Feeser and Willard (1989)	JBV	Performance	Electronic computing	Public	All	Sales growth %			
Hill and Snell (1988)	SMJ	Profitability	Research intensive industries	Public	n/a		ROA (industry adjusted)		

* Additional performance measures

Table 23: Articles on high-technology industries (n: 22)

Growth and profitability among privately-held high-technology firms is a nearly inexistent research context. As stated above, there are a total of ten articles concerned with only privately-held firms. Out of these, only four also use a profitability measure, all of which are self-reported (Covin et al, 1990; Bantel, 1998; Zahra & Bogner, 1999; Li & Atuahene-Gima, 2001).

Covin et al (1990) measure performance in the following way. First, the respondent indicates the level-of-importance on a five-point Likert-scale using the following performance criteria: sales level, sales growth rate, cash flow, return on shareholder equity, gross profit margin, net profit from operations, profit-to-sales ratio, ROI, and the ability to fund business growth from profits. After, the respondent indicates their level-of-satisfaction on the same performance measures using a Likert-scale. The scales are mathematically adjusted, and then the two scales are multiplied in order to obtain a single-item mean performance index for each respondent. The authors point out that a subjective method is used due to the unavailability of secondary financial data. While the measure is believed to minimize individual- and industry-level bias, it has its drawbacks, which are specifically due to the subjectivity of the measure (Covin et al, 1999).

Bantel (1998) on the other hand measures performance by asking the respondent to rate the firm on eight different measures: sales growth, profitability, R&D results, operating efficiency, market development, customer satisfaction, financial stability, and future prospects. The study focus is on analyzing strategic-, environmental-, and contextual factors together with the firms development stage and their effect of performance. Therefore, the study does not attempt to explore the relationship between different measures of performance, but rather what the specific variables are that explain certain types of performance; a typical performance-as-an-outcome study (McKelvie & Wiklund, 2010).

The performance measures used by Zahra & Bogner (1999) are self-reported market share growth and ROE. The two are then used in separate regression analyses, but the relationship between the measures is not discussed. Finally, Li and Atuahene-Gima (2001) uses a performance measure similar to that of Covin et al (1990). Li and Atuahene-Gima (2001) ask respondents to assess their firm's performance on a five-point Likert-scale in relation to the principal competitors over the preceding three years. The performance measures used are ROI, ROS, profit growth, ROA, overall efficiency of operations, sales growth, market share growth, cash flow from market operations, and firm's overall reputation. These are then composed into a single-item measure, which is used in the regression analyses.

The decision to use self-reported measures was similar in all four articles. On the one hand, subjective-measures are seen as the only way to obtain access to data otherwise unavailable in privately-held firms. On the other hand, self-reported data also allows for the taking into account of the manager's perception of the firm's performance relative to the industry or competition. This can provide a more accurate picture of

the firm's performance than pure secondary data (Covin et al, 1990; Bantel, 1998; Zahra & Bogner, 1999). Bantel (1998) argues that due to the nature of entrepreneurship research, "*creativity in the assessment of performance is necessary in research of this nature*" (Bantel, 1998; 224). However, when a certain performance measure is chosen the justification for its use is not discussed in relation to other performance measures, but merely from the point of validating the chosen measure.

All four studies that include a profitability measure are concerned with start-ups or small firms. In the study by Covin et al (1990) the mean size of the firms in the four clusters studied are between 36 and 70 employees. In Bantel (1998) mean size in the 6 clusters studied are between 5 and 53 employees. In Zahra and Bogner (1999) the mean size of the firms studied are 47 employees. Finally, in Li and Atuahene-Gima (2001) the mean size of the firms studied is 161 employees.

It is noteworthy to find that of 118 articles studied, 22 are concerned with high-technology. Ten of these are concerned with privately-held firms, and finally only four articles also include a measure of profitability, all of them self-reported. Out of these four articles, two create a single-item measure for the selection of measure used, and in the remaining two articles the relationship between the measures is not discussed.

6.7 Discussion of findings

This literature review consisted of reviewing 118 articles from five peer-review journals: AOM, ETP, JBV, JSBM, and SMJ. Articles were selected using the key words growth *and* performance, or growth *and* profitability using Harzing's Publish or Perish database, which is a database running on Google Scholar. Articles were sorted according to relevance, but the final usability of each article was assessed by two researchers. The reason for conducting the review was to show the need for rediscovering profitability in entrepreneurship research. Following a positivistic logic and offering a justified alternative for current research praxis, the review attempts to answer the following research questions:

Why is it justified to replace growth with profits in entrepreneurship research?

- a) What is the focus of the research; industries studied, dependent-, independent-, and control variables used?
- b) How are growth and profitability conceptualized and in what contexts are they both used?
- c) How is performance conceptualized among privately-held high-technology firms?

Reader and Watkins (2006) suggested that start-ups and the growth of ventures is a theme that unifies the otherwise fragmented field of entrepreneurship (Gartner et al, 2006; Grégoire et al, 2006; Reader & Watkins, 2006). Start-ups have a central role for economic development and growth. Despite varying views on how central the role

is, researchers agree that start-ups do have a major impact (Davidsson & Delmar, 2006; Haltiwanger et al, 2010; Neumark, 2010). A dominant majority of firms in the economy are micro-firms, both in Finland and across the EU (Schmiemann, 2008; StatFin, 2009). Based on these points, one might assume that the major journals in entrepreneurship research would also focus specifically on privately-held start-ups. One might also assume that focus is placed specifically on the profitability of these ventures, due to the critical role of profits both for the firm itself and for society (Schumpeter, 1934; Penrose, 1959; Kirzner, 1973; Venkataraman & Ramanujam, 1986; Kim & Mauborgne, 2000; Drucker, 2007). Nevertheless, based on a review of 118 articles from peer-review journals it can be argued that this is not the case.

Less than half of the 118 articles that measure growth also use some measure of profitability (46, 46%). Overall, a total of 33 articles are found to use both growth and profitability measures as dependent variables in their models. Despite this reasonable number of articles, only two of them are specifically focused on the relationship between growth and profitability (Markman & Gartner, 2002; Davidsson et al, 2009). All 33 articles measure growth as relative sales growth; a measure found incomparable with most other measures of performance (see chapters 5.1.3 and 7.3.1). Even if both growth and profitability measures are used in several articles, they are most commonly seen as equally important measures of performance. Little or no discussion is given when a model tested is found to explain either growth or profitability, mostly growth. Of the 33 articles, only 16 are concerned with privately-held firms. In addition, in only three articles it was found that the study sample contained micro firms (i.e. those employing less than ten people).

The small proportion of privately-held firms in the total sample, together with the lack of studies on micro firms is surprising, considering the journals selected for the review. Taking into account the fact that micro firms constitute over 90% of the firms in the economy of almost all European countries, it is surprising to see that most studies fundamentally concentrate on the outliers; large and established firms. The decision to focus research on larger and publicly-traded firms is often argued to be the result of the ease of access to financial data or due to the access to certain databases gathering the data (Eisenmann, 2006); research is driven by data availability rather than suitability (Hayek, 1974). Studies conducted on privately-held firms often rely on self-reported data.

The difficulty of assessing performance, especially among privately-held firms is acknowledged (Birley & Westhead, 1990; Bloodgood, 1996; Bantel, 1998; Robinson, 1998; Zahra, 2002). This often constitutes to some creativity in the conceptualization and use of performance measures, e.g. a large number of measures may be transformed into a single-item measure as a representation of performance (Bantel, 1998). The use of profitability for small and new ventures is found especially difficult due to the amount of time it may take to reach profitability. Moreover, small ventures are found to be more affected by stakeholders, in comparison to their larger counterparts, therefore making it difficult to assess true performance (Bantel, 1998; Feeser & Willard, 1990).

Considering the research context of this thesis, the review finally focused on studies concerned with high-technology. The research was conducted in order to specifically investigate how growth, performance, and profitability are understood in these studies. A total of 22 out of 118 articles (19%) are concerned with high-technology. High-technology may refer to a single industry or it may refer to a collection of up to 36 sectors (Zahra, 1996; Baum & Silverman, 2004). There are only ten articles that are concerned with privately-held high-technology firms. Only four of these include both growth and profitability measures (Covin et al, 1990; Bantel, 1998; Zahra & Bogner, 1999; Li & Atuahene-Gima, 2001). However, all four use self-reported data. Two of these transform a collection of performance measures into single-item measures, hence omitting the possibility for comparing growth and profitability. The remaining two are not concerned with the relationship between growth and profitability. Richard et al (2009) criticizes the way performance measures are transformed, as it may omit the possibility of understanding the multidimensionality of performance. Therefore, the authors recommend the use of more untransformed variables and non-parametric analysis techniques.

All four articles including both a growth and profitability measure are concerned with start-ups or small firms. However, even in these it is unlikely that the results explain the performance of micro firms. In Bantel (1998) one of six clusters studied have the mean size of 5 employees, but apart from that the mean firm sizes are closer to 50 (Covin et al, 1990; Zahra & Bogner, 1999) or even up to 161 employees (Li and Atuahene-Gima, 2001). Based on these results, *studies on growth and profitability among privately-held high-technology start-ups are inexistent.*

Performance is a multidimensional construct (Venkataraman & Ramanujam, 1986; Zahra, 2002; Delmar et al, 2003; Pukkinen et al, 2005; Chan et al, 2006; Biosca, 2010), and large variations have been found in its conceptualization (Murphy et al, 1996; March & Sutton, 1997; Richard et al, 2009). This review concurs with these earlier studies and finds little congruence in the conceptualization of performance. Performance can refer to sales growth (72, 61%), profitability (67, 57%), employment growth (21, 18%), and market share growth (8, 7%). In addition, performance may refer to a large number of more context-specific measures, or to any combination of measures. Growth per se, mostly refers to sales or revenue growth (47, 40%) consistent with earlier studies (Delmar, 2006; Achtenagen et al, 2010), but not as dominantly as in Weinzimmer et al (1998). Overall, a broad variety of contextualization of measures is evident e.g. in the use of performance variables, time frames and measurement methods. For example, sales growth may be measured either in absolute or relative terms, either for a number of consecutive years or as an annual average counted on any number of years.

Given the multidimensionality of performance, one worrying convention is the almost complete lack of justification for the performance measures used. This has also been identified previously (Birley & Westhead, 1990; Murphy et al, 1996; Robinson, 1998; Weinzimmer et al, 1998; Richard et al, 2009; Shepherd & Wiklund,

2009; Achtenagen et al, 2010). This convention, in addition to a broad variety of performance conceptualizations used, makes the situation especially worrying. The situation is worrying considering that performance measures are rarely comparable with each other (see chapters 5.1.3 and 7.3.1). When a justification for the use of a certain performance measure is given, it is still mostly based on its use in an earlier study. Rarely is the context-specificity or suitability of the measures addressed. Building research on results, which are not transferable to another context, creates a danger of further fragmenting the field, instead of building an accumulated knowledge flow (Kuhn, 1970).

The aim of the review was to challenge the current growth and profitability nexus within entrepreneurship research. Following a positivistic view, it is argued that growth should be replaced with profits. This argument is found to be justified. First of all, less than half (46, 45.5%) of all the 101 studies that use a growth measure also use a measure of profitability. This includes all kinds of study contexts, industries, and firms. Secondly, out of the entire sample, 33 studies use both growth and profitability as a dependent variable. Only two, are concerned with the relationship.

Narrowing down the focus to privately-held high-technology firms, the replacement of growth with profits is found even more justified. Based on this literature review there is a clear research gap on privately-held micro high-technology firms. In this context and in our sample of 118 articles, only four studies concerned with privately-held high-technology firms used both a growth and profitability measure. However, none of these four was concerned with the relationship between the two. This research gap was unexpected, taking into consideration the over-emphasis on high-technology evidenced both in EU policies and in general business media (Berry, 1998; Almus & Nerlinger, 1999; Autio, 2007; Brännback & Carsrud, 2008).

7 STUDY II- GROWTH AND PROFITABILITY IN FINNISH HIGH-TECH START-UPS

The second study in this thesis focuses on the growth and profitability nexus in entrepreneurship practice. Based on the findings of the three recent studies presented in chapter 5.2.2 (Davidsson et al, 2009; Brännback et al, 2009; Steffens et al, 2009) a decision was made to elaborate further on the growth-profitability relationship among Finnish high-technology firms.

Brännback et al (2009) is the only study of the three that focuses on high-technology firms. However, their study is focused on a single industry, life-science. The firms in the sample are, on average, eight years old. In addition, their study only includes data from 2004 to 2006, and is hence a snapshot of the performance of firms of that age. Davidsson et al (2009) found that firm age did not have a significant effect on the major findings in their sample, while Steffens et al (2009) found support for start-ups being more growth-oriented. However, neither of these studies included high-technology firms. Therefore, this study (study II A) aims at taking the age variable into account to assess whether the age of the firm affects the probabilities of moving within the growth and profitability matrix (GPM).

The GPM only takes into account the transition probabilities of the firms within four performance states in relation to the industry median. Even if this does give an indication of how the firm is performing as regards its competition, it does not give a full representation of the actual financial performance of these firms. For example, if the industry median profit and growth rates were close to zero, a firm showing figures just above these would stand out in the GPM. Therefore, in addition to only examining the movement probabilities, an exploratory study (study II B) is made of the firms' performance. This is made in order to acquire a deeper understanding of how Finnish high-technology firms are in fact performing.

Thus, the goal of this study is to challenge the current growth and profitability nexus within entrepreneurship practice, by answering the following research questions:

Why is it justified to replace growth with profits in entrepreneurship practice?

- (a) How do Finnish high-technology start-up firms move within a growth and profitability matrix?
- (b) What is the route for profitable growth among Finnish high-technology firms, and does the route vary depending on firm age?
- (c) How do Finnish high-technology firms perform overall?

7.1 Data

The financial data for this study is extracted from the Voitto+ 2009/2 database by Asiakastieto Ltd. The Voitto+ database is an extensive and comprehensive company information database. It contains, in addition to descriptive data about the company, the financial statements and key ratios of 120,000 Finnish companies, including all publicly-traded and privately-held firms (Asiakastieto, 2010). In Finland, all privately-held firms are obligated to submit annually their financial reports to the national board of patents and registration (PRH, 2011). This data is publicly available, although not free of charge.

Data was extracted for bio and IT firms using their five-digit NACE codes⁹. Full profit and loss accounts, and available key ratios, were extracted for all firms founded between 1995 and 2003. The data was then exported to Microsoft Excel for further processing. The sample consisted of 1,699 firms (see table 24 for the number of firms for each year).

NACE	Industry	Year founded							TOTAL		
		1995	1996	1997	1998	1999	2000	2001		2002	2003
62010	IT	120	118	141	98	92	184	140	126	134	1153
62020	IT	42	44	52	48	49	55	59	56	40	445
72191	BIO	7	9	12	9	5	12	10	13	8	85
72110	BIO	1	0	2	1	3	1	3	2	3	16
	TOTAL	170	171	207	156	149	252	212	197	185	1699

Table 24: Initial sample in study II

As shown in table 24 above, the total number of firms founded between 1995 and 2003 is 1699. In order to conduct the Markov chain analysis, three years of performance measures needed to be chosen. The reason for choosing only three years depends on the otherwise caused complexity of the Markov paths. The complexity of the Markov paths is exponentially related to the number of years chosen. If more than three years were chosen, the model would become too complex; for three years the number of potential paths is 64 ($4^3=4$ performance states for each year squared with the number of years). Hence, for four years the number of potential paths would already be 256 and for five years 1,024. In order to count probabilities there should be a number of firms represented for each potential path. Therefore, the use of a longer time-period would decrease the reliability of the Markov chain modeling technique. Additionally, in order to replicate the study by Brännback et al (2009) and in order to test the external validity of the findings, the same number of time-periods was preferred. The frequency distributions over the 64 potential paths were made with Panmark software (van de Pol et al, 1991). The number of frequencies was also

⁹ IT: 62010- Computer programming activities, 62020- Computer consultancy activities. BIO: 72191- Research and development on medical sciences, 72110- Research and experimental development on biotechnology.

validated in Microsoft Excel by counting the occurrence for the paths using various formulas¹⁰.

The time period selected for the Markov-chain analysis was that of 2006 to 2008. The reason for selecting this period was for two reasons. Firstly, year 2006 as the first year would allow the youngest firms to also properly started operations. Secondly, for this time period the fullest data was available; all cases where there was missing data or the number was a zero (in the database indicating missing data), were excluded resulting in a final sample of 1,039 firms. Instead of using three consecutive years as the measurement period, also longer time-intervals could have been used without adding complexity for the Markov-chain. However, in this dataset it would have significantly increased the number of missing data. Hence, the three consecutive years with the best data availability were chosen.

As shown above in table 24, data was extracted for firms founded during nine consecutive years, 1996 to 2003. To allow the testing of different time periods for the study IIB, firms were grouped into three equal age-groups depending on the year founded:

- Group 1: Firms founded 1995-1997 (n: 323)
- Group 2: Firms founded 1998-2000 (n: 344)
- Group 3: Firms founded 2001-2003 (n: 372)

7.1.1 Measures of growth and profitability

Performance was conceptualized in terms of growth and profitability. Similar to Brännback et al (2009), growth was measured as a relative annual growth rate and profitability as EBIT. Relative sales growth rate was preferred because it has been used in similar studies and an emerging consensus supports its use (Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009). EBIT was preferred because it was also used in Brännback et al (2009). EBIT is also the profitability measure preferred by entrepreneurs, policy makers, and investors (Kiviluoto et al, 2010).

Firms were mapped according to their performance in relation to the annual industry median (median performance of all firms in the sample). The median was preferred over the mean because variations in the sample were large (see table 25 below for

¹⁰The coding into four performance categories was done using the following formula:
=IF(AND(FIRMGROWTH>INDUSTRYGROWTH;FIRMEBIT>INDUSTRYEBIT),"Star";IF(AND(FIRMGROWTH>=INDUSTRYGROWTH;FIRMEBIT<=INDUSTRYEBIT),"Growth";IF(AND(FIRMGROWTH<=INDUSTRYGROWTH;FIRMEBIT>=INDUSTRYEBIT),"Profit";IF(AND(FIRMGROWTH<INDUSTRYGROWTH;FIRMEBIT<INDUSTRYEBIT),"Poor";0))))

The coding of performance categories into numerical format was done with the following formula:
=IF(PERFORMANCECATEGORY="star";1;IF(PERFORMANCECATEGORY="profit";2;IF(PERFORMANCECATEGORY="growth";3;IF(PERFORMANCECATEGORY="poor";4;0))))

Finally, the number of occurrences for each path was counted using the following formula:
=COUNTIF(ALLPOTENTIALCODES;CODE)

growth indicators and table 26 for profitability indicators), a natural characteristics of samples with start-up firms.

Firms founded			Sales growth % 2006	Sales growth % 2007	Sales growth % 2008
Group 1: 1995-1997	N	Valid	323	323	323
		Missing	0	0	0
		Median	5.9000	8.2000	1.3000
		Mean	112.6511	68.9424	12.4142
		95% CI Upper bound	21.0636	5.3092	1.1467
		95% CI Lower bound	204.2385	132.5757	23.6818
		Trimmed Mean	21.3537	17.8305	2.2784
		Std. Deviation	836.66893	581.30211	102.93118
		Variance	700014.901	337912.146	10594.828
Group 2: 1998-2000	N	Valid	344	344	344
		Missing	0	0	0
		Median	9.8000	12.1000	8.0000
		Mean	27.9706	83.2131	28.2206
		95% CI Upper bound	15.7297	12.5909	13.4400
		95% CI Lower bound	40.2115	153.8353	43.0012
		Trimmed Mean	15.8691	16.8050	10.7868
		Std. Deviation	115.42744	665.94328	139.37609
		Variance	13323.493	443480.446	19425.694
Group 3: 2001-2003	N	Valid	372	372	372
		Missing	0	0	0
		Median	12.7000	19.2000	10.0000
		Mean	73.9860	41.4634	33.0484
		95% CI Upper bound	19.0983	25.4198	16.4994
		95% CI Lower bound	128.8737	57.5071	49.5973
		Trimmed Mean	25.9848	23.9341	15.5269
		Std. Deviation	538.36820	157.36506	162.32109
		Variance	289840.318	24763.761	26348.135

Table 25: 2006-2008 sales growth between age groups

Table 25 above shows the statistics for relative sales growth, for 2006-2008, between the three age groups. For firms in Group 1 the mean sales growth for the time period is as follows: 2006 (M=112.7%, SD=836.7), 2007 (M=68.9%, SD=581.3) and 2008 (M=12.4%, SD=102.93). For firms in Group 2 the sales growth for the time period is: 2006 (M=28.0%, SD=115.4), 2007 (M=83.2%, SD=665.9), and 2008 (M=28.2%, SD=139.4). Finally, the mean sales growth for the youngest firms, those in Group 3 is: 2006 (M=74.0%, SD=538.4), 2007 (M=41.5%, SD=157.4) and 2008 (M=33.0%, SD=162.3). The fluctuation in the growth rate over the time period is large within each group, and also between the groups. Usually it is more difficult for larger firms to maintain high relative growth rates. The variance and standard deviations shows large annual variances. The trimmed mean shows notably lower growth rates, but compared to the median it is notably higher. Therefore, the use of the median sales growth measure is preferred.

The median sales growth for the oldest firms in Group 1 is as follows: 2006 (Mdn=5.9%), 2007 (Mdn=8.2%), and 2008 (Mdn=1.3%). The firms in Group 2 show the following median sales growth: 2006 (Mdn=9.8%), 2007 (Mdn=12.1%), and 2008 (Mdn=8.0%). Finally the youngest firms, i.e. those in Group 3, show the following median growth rates: 2006 (Mdn=12.7%), 2007 (Mdn=19.2%) and 2008 (Mdn=10.0%).

Firms founded			EBIT 2006	EBIT 2007	EBIT 2008
Group 1: 1995-1997	N	Valid	323	323	323
		Missing	0	0	0
		Median	8.9000	8.6000	7.0000
		Mean	-12.2870	7.4319	-21.5514
		95% CI Upper bound	-52.0547	1.9419	-47.1257
		95% CI Lower bound	27.4807	12.9218	4.0230
		Trimmed Mean	11.5782	11.7648	7.2633
		Std. Deviation	363.28581	50.15176	233.62669
		Variance	131976.579	2515.200	54581.430
	Group 2: 1998-2000	N	Valid	344	344
Missing			0	0	0
		Median	5.7500	6.0500	5.8000
		Mean	-28.1142	-20.6802	-12.7808
		95% CI Upper bound	-85.8152	-54.5164	-27.9390
		95% CI Lower bound	29.5868	13.1559	2.3774
		Trimmed Mean	8.7604	6.6706	5.8578
		Std. Deviation	544.10081	319.06353	142.93660
		Variance	296045.690	101801.539	20430.872
Group 3: 2001-2003		N	Valid	372	372
	Missing		0	0	0
		Median	7.8500	5.9500	5.8500
		Mean	-2.7702	-5.4530	.3825
		95% CI Upper bound	-10.9695	-19.3304	-8.7752
		95% CI Lower bound	5.4292	8.4245	9.5402
		Trimmed Mean	8.1838	7.2422	7.6664
		Std. Deviation	80.42390	136.11754	89.82353
		Variance	6468.003	18527.984	8068.266

Table 26: 2006-2008 EBIT ratios between age groups

Table 26 above shows the statistics for profitability measured as EBIT, for years 2006-2008 between the three age groups. For firms in Group 1 the EBIT for the time period is as follows: 2006 (M=-12.3%, SD=363.3), 2007 (M=7.4%, SD=50.2), and 2008 (M=-21.6%, SD=233.6). For firms in Group 2 the EBIT for the time period is: 2006 (M=-28.1%, SD=544.1), 2007 (M=-20.7%, SD=319.1), and 2008 (M=-12.8%, SD=142.9). Finally, the EBIT for the youngest firms, i.e. for those in Group 3 is: 2006 (M=-2.8%, SD=80.4), 2007 (M=-5.5%, SD=136.1), and 2008 (M=0.4%, SD=89.8). Similarly, as for relative sales growth the fluctuations in profitability over time is notably large within each group, as well as between the groups. The variance and standard deviations shows the large annual variances.

The trimmed mean is fairly close to the median, suggesting a more normally distributed sample. However, for consistency the median measure is also preferred over the mean for the profitability measure. The median EBIT for the oldest firms in Group 1 is as follows: 2006 (8.9%), 2007 (8.6%), and 2008 (7.0%). The firms in Group 2

achieve the following EBIT rates: 2006 (5.8%), 2007 (6.0%), and 2008 (5.6%). Finally the youngest firms, i.e. those in Group 3, show the following EBIT rates: 2006 (7.9%), 2007 (6.0%), and 2008 (5.9%).

Industry			Sales growth 2006	Sales growth 2007	Sales growth 2008
BIO-firms	N	Valid	67	67	67
		Missing	0	0	0
		Median	2.900	16.100	2.700
		Mean	50.0418	198.6030	6.6657
		95% CI Upper bound	9.3761	-100.3080	-4.6696
		95% CI Lower bound	90.7075	497.5139	18.0009
		Trimmed Mean	25.4328	30.5743	3.8969
		Std. Deviation	166.718	1225.451	46.471
		Variance	27794.863	1501729.681	2159.593
	IT-firms	N	Valid	972	972
Missing			0	0	0
		Median	10.250	12.800	7.400
		Mean	72.1998	54.5388	26.3015
		95% CI Upper bound	35.1267	28.2001	17.3219
		95% CI Lower bound	109.2729	80.8775	35.2812
		Trimmed Mean	20.5492	19.0893	10.3080
		Std. Deviation	588.983	418.444	142.661
		Variance	346900.938	175095.367	20352.042

Table 27: 2006-2008 sales growth between industries

Table 27 above shows the sales growth rates of 2006-2008 for the bio and IT industries. The mean growth rate for bio firms is: 2006 (M=50.0%, SD=166.7), 2007 (M=198.6%, SD=1225.5), and 2008 (M=6.7%, SD=46.5). Similarly, the growth rates for IT firms are: 2006 (M=72.2%, SD=589.0) 2007 (M=54.4%, SD=418.4), and 2008 (M=26.3%, SD=142.7). The standard deviations and variances shows large annual fluctuations and differences over time are also very large, e.g. the mean growth rate for bio firms is 198.6% in 2007, but decreases to only 6.7% for 2008.

The trimmed mean shows a notably smaller growth rate, but is in many observations more than double that of the median. For example, for IT firms the mean and trimmed mean are as follows: 2006 (TM=25.4%, M=50.0%), 2007 (TM=30.6%, M=198.6%), 2008 (TM=3.8%, M=6.7%). The median growth rates between bio firms are as follows: 2006 (Mdn=2.9%), 2007 (Mdn=16.1%), and 2008 (Mdn=2.7%). Similarly, the median growth rates for IT firms are: 2006 (Mdn=10.3%), 2007 (Mdn=12.8%), and 2008 (Mdn=7.4%).

Industry			EBIT 2006	EBIT 2007	EBIT 2008
BIO-firms	N	Valid	67	67	67
		Missing	0	0	0
	Median		10.800	13.600	11.300
	Mean		-105.9806	-35.3522	-28.5746
	95% CI Upper bound		-299.8224	-108.7187	-75.5526
	95% CI Lower bound		87.8612	38.0143	18.4033
	Trimmed Mean		1.1736	10.1984	5.0019
	Std. Deviation		794.697	300.782	192.596
	Variance		631542.936	90469.831	37093.352
IT-firms	N	Valid	972	972	972
		Missing	0	0	0
	Median		7.250	6.600	6.000
	Mean		-7.7879	-4.4994	-9.5688
	95% CI Upper bound		-28.4144	-16.7371	-19.7072
	95% CI Lower bound		12.8387	7.7383	.5695
	Trimmed Mean		9.6406	8.3374	6.9169
	Std. Deviation		327.695	194.421	161.069
	Variance		107384.095	37799.489	25943.088

Table 28: 2006-2008 EBIT ratio between industries

Table 28 above shows the EBIT ratios of bio and IT firms over the years 2006 to 2008. The mean EBIT ratios for bio firms are: 2006 (M=-105.9%, SD=794.7), 2007 (M=-35.4%, SD=300.8), and 2008 (M=-28.6%, SD=192.6). IT firms, on the other hand, achieve the following EBIT ratios: 2006 (M=-7.7%, SD=327.7), 2007 (M=-4.5%, SD=194.4) and 2008 (M=-9.6%, SD=161.1).

The median EBIT rates for bio firms during the time period are: 2006 (Mdn=10.8%), 2007 (Mdn=13.6%) and 2008 (Mdn=11.3%). IT firms, on the other hand, achieve the following EBIT rates: 2006 (Mdn=7.3%), 2007 (Mdn=6.6%), and 2008 (Mdn=6.0%).

The large variance in performance indicators over time and across industries, indicate that the data is not normally distributed, and that outliers may affect the sample mean. In addition, a difference between the variance between years, and across industries is notable. Therefore, the median is preferred over the mean for all statistical tests.

7.1.2 Parametric and non-parametric statistical tests

When conducting statistical tests the researcher needs to make a choice between the use of parametric and non-parametric tests (Siegel & Castellan, 1988; Malhotra, 2004; Pallant, 2005). Very often the parametric measures are chosen over the non-parametric alternatives (MacDonald, 1999), very often despite any consideration or testing of their appropriateness (Siegel & Castellan, 1988).

Parametric tests are suitable only when the underlying assumptions about the data are met (Siegel & Castellan, 1988; Pallant, 2005). There are four underlying

assumptions that should be fulfilled in order for the parametric tests to be suitable (Siegel & Castellan, 1988, 20):

1. The observations must be independent
2. The observations must be drawn from a normally distributed population
3. The populations must have the same variances
4. The variables must be measured in at least an interval scale

If the four conditions stated above are met, the parametric tests will be stronger and hence their use can be justified. Often, the most important criterion is that of a normal distribution. When these criteria are not met, the use of parametric test is unsuitable and can even lead to faulty results (Siegel & Castellan, 1988; MacDonald, 1999). MacDonald (1999) found that once the distributions are non-normal, clear advantages were found for the use of non-parametric tests. In addition, he found that, when the distributions are of unequal sizes, the advantages were even stronger (MacDonald, 1999). Therefore, the major advantages of non-parametric tests for this study is that they have less assumptions about the data, and that they are well suited to small and unequal sample sizes (Siegel & Castellan, 1988; MacDonald, 1999).

The decision was made to prefer non-parametric measures. This decision was based on two things. First of all, a Kolmogorov-Smirnov test was made to assess the normality of the distributions. Results were significant for all growth and profitability measures ($p < .000$), indicating of a non-normal distribution. This, however, was expected considering the variance and standard deviations shown previously in tables 25-28. Secondly, the sample sizes for all tests comparing industries are unequal (bio $N=67$, IT $N=972$), justifying the use of non-parametric measures (Siegel & Castellan, 1988; MacDonald, 1999). This does not hold true when comparing different age groups (Group 1 $N= 323$, Group 2 $N=344$, Group 3 $N=372$), but in order to ensure consistency the choice was made to rely solely on non-parametric measures. In addition, recent research on firm performance has recommended the use of non-parametric measures and untransformed data, instead of transforming the data for being able to use parametric measures (Richard et al, 2009). Table 29 below shows the non-parametric tests used, together with their parametric alternatives.

Purpose	Non-parametric test	Parametric test
For calculating the strength of the relationship between two continuous variables	Spearman's Rank Order Correlation (Spearman's rho)	Pearson's product-moment correlation
For testing differences between two independent groups on a continuous variable	Mann-Whitney U Test	Independent-samples t-test
For testing differences between three or more independent groups on a continuous variable	Kruskal-Wallis Test	One-Way between-groups ANOVA

Table 29: Non-parametric tests used

Source: Pallant (2005)

7.2 Results II A- Growth and profitability relationship for start-up firms

7.2.1 Firms founded 1995-1997

Indicator t	Indicator t+1				
	Star	Profit	Growth	Poor	Total
Star	0.431 (0.037)	0.282 (0.033)	0.066 (0.018)	0.221 (0.031)	1.000
Profit	0.386 (0.041)	0.357 (0.040)	0.064 (0.021)	0.193 (0.033)	1.000
Growth	0.218 (0.035)	0.077 (0.022)	0.380 (0.041)	0.324 (0.039)	1.000
Poor	0.186 (0.029)	0.071 (0.019)	0.279 (0.033)	0.464 (0.037)	1.000

Table 30: Transition probabilities of firms founded 1995-1997

Table 30 above shows the time homogeneous transition probabilities inside a GPM of the high-technology firms founded between 1995 and 1997. The probability levels for the Likelihood Ratio and Pearson Chi tests were 0.0008 and 0.0018 respectively indicating of a very good model. Within all states the firms are most likely to remain in the state at t+1 as where they were at t. Profit-firms (0.386) are more likely to become stars as growth-firms (0.218). In addition, profit-firms (0.193) are less likely than growth-firms (0.324) to become poor firms.

7.2.2 Firms founded 1998-2000

Indicator t	Indicator t+1				
	Star	Profit	Growth	Poor	Total
Star	0.437 (0.035)	0.296 (0.032)	0.107 (0.022)	0.160 (0.026)	1.000
Profit	0.428 (0.042)	0.312 (0.039)	0.080 (0.023)	0.181 (0.033)	1.000
Growth	0.181 (0.033)	0.058 (0.020)	0.275 (0.038)	0.486 (0.043)	1.000
Poor	0.209 (0.028)	0.073 (0.018)	0.272 (0.031)	0.447 (0.035)	1.000

Table 31: Transition probabilities of firms founded 1998-2000

Table 31 above shows the time homogeneous transition probabilities inside a GPM of the high-technology firms founded between 1998 and 2000. The probability levels for the Likelihood Ratio and Pearson Chi tests were 0.1032 and 0.0976 respectively indicating of an adequate model. Moreover, within these firms a similar pattern as above is evident. Profit-firms (0.428) are more than two times as likely to become stars as growth-firms (0.181). Similarly, growth-firms (0.486) are more than two times as likely as profit-firms (0.181) to become poor-firms. Interestingly, growth-firms (0.486) are even more likely to become poor-firms, as those that started from a poor position (0.447).

7.2.3 Firms founded 2001-2003

Indicator t	Indicator t+1				
	Star	Profit	Growth	Poor	Total
Star	0.440 (0.034)	0.314 (0.032)	0.121 (0.023)	0.126 (0.023)	1.000
Profit	0.339 (0.037)	0.388 (0.038)	0.067 (0.019)	0.206 (0.031)	1.000
Growth	0.170 (0.029)	0.079 (0.021)	0.418 (0.038)	0.333 (0.037)	1.000
Poor	0.150 (0.025)	0.116 (0.022)	0.295 (0.032)	0.440 (0.034)	1.000

Table 32: Transition probabilities of firms founded 2001-2003

Table 32 above shows the time homogeneous transition probabilities inside a GPM of the youngest high-technology firms in the sample, i.e. those founded between 2001 and 2003. The probability levels for the Likelihood Ratio and Pearson Chi tests were 0.00001 and 0.000006 respectively indicating of a very good model. Overall, firms are the most likely to remain in the state at t+1 as where they were at t. Profit-firms (0.339) are twice as likely as growth-firms (0.170) to become star-firms. The likelihood of becoming a poor-firm is similar to those of older firms, but not as clear-cut; profit-firms become poor with the likelihood of 0.206, in comparison to growth-firms with a likelihood of 0.333.

7.2.4 High-profitability versus low-profitability positions

The GPM can fundamentally be divided into two different states: High-profitability (Star and Profit state) and low-profitability (Growth and Poor). For all age-groups the probability pattern is the same; the two most likely transitions are always within the states of high-profitability or low-profitability. In other words a profit or star firm at t is most likely to be either a profit or star firm at t1, while a growth or poor firm at t will most likely be a growth or poor firm at t1.

For the oldest firms, group 1, the probability of high-profitability firms to remain in those positions is 0.713 for a star firm and 0.743 for a profit firm. The probability of a low-profitability firm remaining in a low-profitability position is 0.704 for growth firms and 0.743 for poor firms. Similarly, the probability of a high-profitability firm remaining in the position is 0.743 for profit firms and 0.713 for star firms.

For group 2, the probability of remaining in a high-profitability position is 0.733 for star firms and 0.740 for a profit firm. At the same time, the probability for a low-profitability firm to remain so is 0.761 for a growth firm and 0.719 for poor firms. Simultaneously, the probability for a high-profitability firm to remain in the position is 0.740 for profit firms and 0.733 for star firms.

Finally, for the youngest firms from group 3, the probability of remaining in a high-profitability state is 0.754 for star firms and 0.727 for profit firms. The probability of remaining in a low-profitability state is 0.751 for growth firms, and 0.735 for poor

firms. Similarly, the probability for a high-profitability firm to remain in the position is 0.727 for profit firms and 0.754 for star firms.

7.3 Results II B-Exploratory financial analysis

The second part of the results section aims at exploring the actual financial state of the Finnish high-technology firms, in order to extend understanding of how these firms actually are performing.

7.3.1 Relationship between performance variables

The Spearman's rho, or Spearman's rank order correlation was used to test the relationship between performance variables (Malhotra, 2004; Siegel & Castellan, 1988). The Spearman's rho is the non-parametric correlation alternative, and similarly as its parametric alternative, it measures the association between variables (Siegel & Castellan, 1988).

A number of financial measures, in addition to the used sales growth rate and EBIT, were used. In order to even out the annual fluctuation, which may be very large (Delmar, 2006; Shepherd & Wiklund, 2009) a compound measure of the 3-year annual average is used (counted as the sum over three years divided by three). The following performance measures for the time period between 2006 and 2008 were used (see Appendix II for a list of definitions and calculation methods):

- **Relative measures and ratios:** sales growth, operating margin, EBIT, ROI, ROA, quick ratio, current ratio, equity ratio, net gearing, debt-to-sales ratio, working capital.
- **Absolute measures:** sales, gross result, operating result, and the net result.

Table 33 below shows the Spearman's rho correlations between the various performance measures. The strength of the relationship for a Spearman rho can be interpreted similarly to its parametric alternative, the Pearson product-moment correlation (Pallant, 2005). The strengths of the associations are categorized as small ($r > 0.10$), medium/moderate ($r > 0.30$) and large ($r > 0.50$) (Cohen, 1977).

In large samples of more than 100 observations, very small correlations can show statistical significance. This makes their use fairly trivial as very insignificant differences can show statistical significance (Pallant, 2005). Instead, the coefficient of determination is often preferred, which is calculated as r^2 , and shows the amount of shared variance between the variables (Cohen 1977; Pallant, 2005). These are shown in the subsequent, table 34.

Spearman's rho	Mdn.	Sales growth	Operatin g Margin	EBIT	Quick Ratio	Current Ratio	ROI	ROA	Equity Ratio	Net Gearing	Debt to sales ratio	Working capital	Sales result	Gross result	Operating result	Net result
	15.47	1.000														
Sales growth																
Operating Margin	9.43	.100**	1.000													
EBIT	5.73	.122**	.933**	1.000												
Quick Ratio	2.13	-.039	.367**	.421**	1.000											
Current Ratio	2.17	-.033	.372**	.426**	.956**	1.000										
ROI	18.27	.212**	.733**	.823**	.281**	.270**	1.000									
ROA	13.47	.200**	.793**	.875**	.354**	.353**	.978**	1.000								
Equity Ratio	52.30	-.066*	.446**	.492**	.695**	.712**	.363**	.434**	1.000							
Net Gearing	-43	.046	-.023	-.025	-.209**	-.168**	-.003	-.006	-.014	1.000						
Debt to sales ratio	23.17	.056	-.250**	-.352**	-.473**	-.487**	-.379**	-.406**	-.722**	.037	1.000					
Working capital	8.90	.096**	.139**	.161**	.120**	.207**	.118**	.148**	.098**	.200**	-.042	1.000				
Sales result	239.1	.159**	-.002	.080**	-.143**	-.178**	.262**	.191**	-.241**	.075*	.042	.129**	1.000			
Gross result	188.1	.167**	.057	.130**	-.126**	-.170**	.289**	.228**	-.226**	.088**	.077*	.160**	.955**	1.000		
Operating result	13.00	.152**	.659**	.739**	.246**	.232**	.823**	.803**	.298**	.070*	-.273**	.178**	.494**	.529**	1.000	
Net result	9.67	.156**	.644**	.716**	.275**	.257**	.785**	.775**	.320**	.061	-.274**	.176**	.458**	.489**	.912**	1.000

Significance levels * p<0.05, **p<0.01, *** p<0.001

Table 33: Correlations between performance variables (3-year average)

	Sales growth	Operating Margin	EBIT	Quick Ratio	Current Ratio	ROI	ROA	Equity Ratio	Net Gearing	Debt to sales ratio	Working capital	Sales result	Operating result	Net result
Sales growth	100 %													
Operating Margin	1.00 %	100 %												
EBIT	1.49 %	87.05 %	100 %											
Quick Ratio	0.15 %	13.47 %	17.72 %	100 %										
Current Ratio	0.11 %	13.84 %	18.15 %	91.39 %	100 %									
ROI	4.49 %	53.73 %	67.73 %	7.90 %	7.29 %	100 %								
ROA	4.00 %	62.88 %	76.56 %	12.53 %	12.46 %	95.65 %	100 %							
Equity Ratio	0.44 %	19.89 %	24.21 %	48.30 %	50.69 %	13.18 %	18.84 %	100 %						
Net Gearing	0.21 %	0.06 %	0.06 %	4.37 %	2.82 %	0.00 %	0.00 %	0.02 %	100 %					
Debt to sales ratio	0.31 %	6.25 %	12.39 %	22.37 %	23.72 %	14.36 %	16.48 %	52.13 %	0.14 %	100 %				
Working capital	0.92 %	1.93 %	2.59 %	1.44 %	4.28 %	1.39 %	2.19 %	0.96 %	4.00 %	0.17 %	100 %			
Sales	2.53 %	0.00 %	0.64 %	2.04 %	3.17 %	6.86 %	3.65 %	5.81 %	0.56 %	0.18 %	1.66 %	100 %		
Gross result	2.79 %	0.33 %	1.69 %	1.59 %	2.89 %	8.35 %	5.20 %	5.11 %	0.77 %	0.59 %	2.56 %	91.20 %	100 %	
Operating result	2.31 %	43.43 %	54.61 %	6.05 %	5.38 %	67.73 %	64.48 %	8.88 %	0.49 %	7.45 %	3.17 %	24.40 %	27.98 %	100 %
Net result	2.43 %	41.47 %	51.27 %	7.56 %	6.60 %	61.62 %	60.06 %	10.24 %	0.37 %	7.51 %	3.10 %	20.98 %	23.91 %	83.17 %

Table 34: Coefficients of determination between performance variables (3-year average)

Relative sales growth

It should be noted, first of all, that relative sales growth is significantly correlated with ten other performance measures. However, the strengths of the relationships are mostly small (Cohen, 1977). Once the coefficients of determination are calculated, the shared variance is very small. Sales growth is significantly correlated with operating margin ($r=.100$, $p<.01$, $r^2= 1.00\%$), EBIT ($r=.122$, $p<.01$, $r^2=1.49\%$), ROI ($r=.212$, $p<.01$, $r^2=4.49\%$), ROA ($r=.200$, $p<.01$, $r^2=4.00\%$), equity ratio ($r=-.06$, $p<.05$, $r^2=0.44\%$), working capital ($r=.096$, $p<.01$, $r^2=0.92\%$), absolute sales ($r=.159$, $p<.01$, $r^2=2.53\%$), gross result ($r=.167$, $p<.01$, $r^2=2.79\%$), operating result ($r=.152$, $p<.01$, $r^2=2.31\%$), and net result ($r=.156$, $p<.01$, $r^2=2.43\%$). These result suggest that there is no or only low concurrent validity between relative sales growth and any other performance measure (Shepherd & Wiklund, 2009).

The low correlations between relative sales growth and other performance measures, lead to a further examination of the concurrent validity between sales growth and other measures. Table 35 below shows the correlations between relative sales growth and all other performance variables, when comparing within industries and within age groups. Table 36, which follow, shows the coefficient of determination between the same variables.

	Overall	Bio	IT	Group 1	Group 2	Group 3
N	1039	67	972	323	344	372
Operating Margin	.100**	.007	.110**	.156**	.123*	.038
EBIT	.122**	.003	.131**	.142*	.145**	.091
Quick Ratio	-.039	-.006	-.043	-.068	-.010	-.030
Current Ratio	-.033	.018	-.038	-.062	-.005	-.013
ROI	.212**	.174	.215**	.206**	.241**	.193**
ROA	.200**	.165	.204**	.199**	.234**	.178**
Equity Ratio	-.066*	-.095	-.064*	-.113*	.000	-.068
Net Gearing	.046	-.141	.061	.031	.028	.096
Debt to sales ratio	.056	.057	.057	.046	.061	.054
Working capital	.096**	.043	.099**	.118*	.025	.138**
Sales	.159**	.135	.162**	.174**	.147**	.160**
Gross result	.167**	.144	.171**	.172**	.162**	.170**
Operating result	.152**	.038	.160**	.152**	.210**	.102*
Net result	.156**	.143	.156**	.166**	.206**	.110*

Significance levels * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 35: Correlations between relative sales growth and other performance variables (3-year average)

	Overall	Bio	IT	Group 1	Group 2	Group 3
N	1039	67	972	323	344	372
Operating Margin	1.000 %	0.005 %	1.210 %	2.434 %	1.513 %	0.146 %
EBIT	1.488 %	0.001 %	1.716 %	2.016 %	2.103 %	0.827 %
Quick Ratio	0.154 %	0.004 %	0.186 %	0.464 %	0.009 %	0.093 %
Current Ratio	0.110 %	0.032 %	0.143 %	0.384 %	0.003 %	0.016 %
ROI	4.494 %	3.031 %	4.623 %	4.244 %	5.808 %	3.725 %
ROA	4.000 %	2.722 %	4.162 %	3.960 %	5.476 %	3.168 %
Equity Ratio	0.436 %	0.901 %	0.410 %	1.277 %	0.000 %	0.468 %
Net Gearing	0.214 %	1.994 %	0.372 %	0.095 %	0.079 %	0.920 %
Debt to sales ratio	0.309 %	0.323 %	0.328 %	0.213 %	0.377 %	0.297 %
Working capital	0.922 %	0.185 %	0.980 %	1.392 %	0.065 %	1.904 %
Sales	2.528 %	1.826 %	2.624 %	3.028 %	2.161 %	2.560 %
Gross result	2.789 %	2.081 %	2.924 %	2.958 %	2.624 %	2.890 %
Operating result	2.310 %	0.148 %	2.560 %	2.310 %	4.410 %	1.040 %
Net result	2.434 %	2.051 %	2.434 %	2.756 %	4.244 %	1.210 %

Table 36: Coefficients of determination between sales growth and other performance variables (3-year average)

The two tables above show no or *only low concurrent validity between relative sales growth and any other performance measure*, regardless of a comparison within industries or within different age-groups (Shepherd & Wiklund, 2009). Subsequently, the coefficients of determination are low with only a single-digit shared variance between relative sales growth and any other performance indicator.

Absolute sales

Secondly, when returning to table 33, it can be noted that absolute sales are significantly correlated with 12 other performance measures. However, all correlations between absolute sales and any relative performance measure are weak: relative sales growth ($r=.159$, $p<.01$, $r^2=2.53\%$), EBIT ($r=.080$, $p<.01$, $r^2=0.64\%$), quick ratio ($r=-.143$, $p<.01$, $r^2=2.04\%$), current ratio ($r=-.178$, $p<.01$, $r^2=3.17\%$), ROI ($r=.262$, $p<.01$, $r^2=6.86\%$), ROA ($r=.191$, $p<.01$, $r^2=3.65\%$), equity ratio ($r=-.241$, $p<.01$, $r^2=5.81\%$), net gearing ($r=.075$, $p<.05$, $r^2=0.56\%$), working capital ($r=.129$, $p<.01$, $r^2=1.66\%$). These results suggest that there is no or only low concurrent validity between absolute sales and all relative performance measure (Delmar, 2006; Shepherd & Wiklund, 2009).

However, absolute sales growth is moderately or strongly correlated with other absolute measures; gross result ($r=.955$, $p<.01$, $r^2=91.20\%$), operating result ($r=.494$, $p<.01$, $r^2=24.40\%$), and net result ($r=.458$, $p<.01$, $r^2=20.98\%$). These results concur with earlier findings (Weinzimmer et al, 1998; Delmar, 2006; Achtenagen et al, 2010).

EBIT

Thirdly, the focus is shifted towards profitability measures. EBIT is significantly correlated with 13 other performance measures, many of them moderately or even strongly correlated. EBIT is significantly correlated with sales growth ($r=.122$, $p<.01$, $r^2=1.49\%$), operating margin ($r=.933$, $p<.01$, $r^2=87.05\%$) quick ratio ($r=.421$, $p<.01$, $r^2=17.72\%$), current ratio ($r=.426$, $p<.01$, $r^2=18.15\%$), ROI ($r=.823$, $p<.01$, $r^2=67.73\%$), ROA ($r=.875$, $p<.01$, $r^2=76.56\%$), equity ratio ($r=.429$, $p<.01$, $r^2=24.21\%$), debt to sales

ratio ($r=-.352$, $p<.01$, $r^2=12.39\%$), working capital ($r=.161$, $p<.01$, $r^2=2.59\%$), absolute sales ($r=.080$, $p<.01$, $r^2=.64\%$), gross result ($r=.130$, $p<.01$, $r^2=1.69\%$), operating result ($r=.739$, $p<.01$, $r^2=54.61\%$), and net result ($r=.716$, $p<.01$, $r^2=51.27\%$).

An investigation of the correlation coefficients shows moderate and even high concurrent validities between EBIT and a number of other profitability measures (Shepherd & Wiklund, 2009). There is moderate concurrent validity between EBIT and quick ratio, current ratio, and equity ratio. In addition, there is high concurrent validity between EBIT and other relative profitability measures: ROI, and ROA. There is also high concurrent validity between EBIT and absolute profitability measures, as well as operating result and net result. No concurrent validity exists between EBIT and absolute sales, and a very low concurrent validity between EBIT and relative sales growth. The coefficients of determination show that the shared variance between EBIT and both relative sales growth (0.64%) and absolute sales (1.49%) is very low.

Operating result

Fourthly, there is the relationship between operating result and other performance variables. The operating result is significantly correlated towards all other performance measures: sales growth ($r=.152$, $p<.01$, $r^2=2.31\%$), operating margin ($r=.659$, $p<.01$, $r^2=43.43\%$), EBIT ($r=.739$, $p<.01$, $r^2=54.61\%$), quick ratio ($r=-.246$, $p<.01$, $r^2=6.05\%$), current ratio ($r=.232$, $p<.01$, $r^2=5.38\%$), ROI ($r=.823$, $p<.01$, $r^2=67.73\%$), ROA ($r=.803$, $p<.01$, $r^2=64.48\%$), equity ratio ($r=.298$, $p<.01$, $r^2=8.88\%$), net gearing ($r=.070$, $p<.05$, $r^2=.49\%$), debt to sales ratio ($r=-.273$, $p<.01$, $r^2=7.45\%$), working capital ($r=.178$, $p<.01$, $r^2=3.17\%$), absolute sales ($r=.494$, $p<.01$, $r^2=24.40\%$), gross result ($r=.529$, $p<.01$, $r^2=27.98\%$), and net result ($r=.912$, $p<.01$, $r^2=83.17\%$). Similar to EBIT, a high concurrent validity exist between the operating result and other profitability measures; operating margin, EBIT, ROI, ROA, gross result and net result. Furthermore, a moderate, almost strong, concurrent validity exists between operating result and absolute sales, but only low with relative sales growth (Shepherd & Wiklund, 2009).

Overall, it can be stated that profitability measures tend to have a high correlation with other profitability measures, measured both in relative and absolute terms. In contrast to relative sales growth, which has a weak correlation with all performance measures, absolute sales show moderate and high correlations with other absolute measures of performance.

7.3.2 Performance differences between bio and IT

A Mann-Whitney U test (equivalent to parametric alternative independent samples t-test) was used for comparing the differences in various annual performance indicators between bio and IT firms. Results for the differences in relative measures can be seen in table 37 below, and the differences between absolute measures in table 38.

As table 37 indicates, there are significant differences between bio and IT firms among seven of the 33 annual relative performance indicators; operating margin 2007 (bio Mdn=18.8, IT Mdn=10.2, p=.021), operating margin 2008 (bio Mdn=16.4, IT Mdn=9.9, p=.021), quick ratio 2007 (bio Mdn=2.7, IT Mdn=1.9, p=.004), current ratio 2007 (bio Mdn=2.7, IT Mdn=1.9, p=.014), working capital 2007 (bio Mdn=2.9, IT Mdn=9.2, p=.000), working capital (bio Mdn=2.7, IT Mdn=9.0, p=.000), and working capital (bio Mdn=3.1, IT Mdn=8.0, p=.005).

Performance measure	Overall median	Bio median (n:67)	IT median (n: 982)	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig (2-tailed)
Sales growth % 2006	9.9	2.9	10.3	30959.5	33237.5	-.675	0.500
Sales growth % 2007	13.2	16.1	12.8	30646.5	503524.5	-.806	0.420
Sales growth % 2008	6.7	2.7	7.4	29690.5	31968.5	-1.209	0.227
Operating margin 2006	11.2	14.6	11.1	30178.5	503056.5	-1.003	0.316
Operating margin 2007	10.5	18.8	10.2	27067.5	499945.5	-2.313	0.021*
Operating margin 2008	10.1	16.4	9.9	27099.0	499977.0	-2.300	0.021*
EBIT 2006	7.4	10.8	7.3	31424.0	504302.0	-.479	0.632
EBIT 2007	7.0	13.6	6.6	28240.5	501118.5	-1.819	0.069
EBIT 2008	6.1	11.3	6.0	29295.0	502173.0	-1.375	0.169
Quick ratio 2006	1.9	2.1	1.9	29700.0	502578.0	-1.205	0.228
Quick ratio 2007	1.9	2.7	1.9	25719.0	498597.0	-2.881	0.004**
Quick ratio 2008	2.0	2.4	2.0	28008.0	500886.0	-1.917	0.055
Current ratio 2006	1.9	2.0	1.9	30355.5	503233.5	-.929	0.353
Current ratio 2007	1.9	2.7	1.9	26726.0	499604.0	-2.457	0.014**
Current ratio 2008	2.0	2.3	2.0	29036.0	501914.0	-1.485	0.138
ROI 2006	18.8	18.4	18.8	30732.5	33010.5	-.770	0.441
ROI 2007	15.7	14.9	15.8	32051.5	504929.5	-.215	0.830
ROI 2008	15.9	12.9	16.2	31392.0	33670.0	-.492	0.622
ROA 2006	14.3	17.2	14.3	31387.5	33665.5	-.494	0.621
ROA 2007	12.8	14.4	12.8	31478.5	504356.5	-.456	0.648
ROA 2008	12.3	11.9	12.3	32512.0	34790.0	-.021	0.983
Equity ratio 2006	51.4	60.6	51.0	30204.0	503082.0	-.993	0.321
Equity ratio 2007	53.1	63.6	53.0	28759.5	501637.5	-1.601	0.109
Equity ratio 2008	55.2	66.0	54.8	29602.5	502480.5	-1.246	0.213
Net gearing 2006	-0.4	-0.4	-0.4	30934.0	33212.0	-.686	0.493
Net gearing 2007	-0.4	-0.4	-0.4	32132.5	505010.5	-.181	0.856
Net gearing 2008	-0.4	-0.4	-0.4	31532.5	504410.5	-.434	0.664
Debt to sales ratio 2006	22.6	34.9	22.6	29254.5	502132.5	-1.392	0.164
Debt to sales ratio 2007	22.7	26.8	22.5	30943.5	503821.5	-.681	0.496
Debt to sales ratio 2008	21.5	30.9	21.4	30264.5	503142.5	-.967	0.333
Working capital 2006	8.7	2.9	9.2	23678.5	25956.5	-3.743	0.000***
Working capital 2007	8.6	2.7	9.0	23874.0	26152.0	-3.659	0.000***
Working capital 2008	7.5	3.1	8.0	25973.0	28251.0	-2.776	0.005**

Significance levels * p<0.05, **p<0.01, *** p<0.001

Table 37: Mann-Whitney U test of ratios and relative annual performance measures between industries

Performance measure	Overall median	Bio median (n:67)	IT median (n: 982)	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig (2-tailed)
Sales 2006	220.0	152.0	229.0	29289.5	31567.5	-1.377	0.168
Sales 2007	236.5	184.0	239.5	30786.5	33064.5	-.747	0.455
Sales 2008	245.0	205.0	249.6	30705.5	32983.5	-.781	0.435
Gross result 2006	175.0	119.0	176.8	28967.0	31245.0	-1.513	0.130
Gross result 2007	193.6	160.0	196.0	30684.0	32962.0	-.790	0.429
Gross result 2008	194.0	161.0	197.1	30814.5	33092.5	-.736	0.462
Operating result 2006	12.0	17.0	11.0	31573.0	33851.0	-.416	0.677
Operating result 2007	12.6	25.0	12.0	31839.5	504717.5	-.304	0.761
Operating result 2008	13.0	21.0	12.1	32520.5	505398.5	-.017	0.986
Net result 2006	9.0	17.0	8.3	32150.5	505028.5	-.173	0.862
Net result 2007	9.0	13.0	9.0	32515.5	34793.5	-.020	0.984
Net result 2008	10.0	17.0	9.0	31896.5	504774.5	-.280	0.779

Significance levels * p<0.05, **p<0.01, *** p<0.001

Table 38: Mann-Whitney U test of absolute annual performance measures (€000) between industries

Table 38 above shows the differences in absolute annual performance measures between bio and IT firms. No significant differences are observed.

Performance measure (3-year average)	Overall median	Bio median (n:67)	IT median (n: 982)	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig (2-tailed)
Sales growth	15.5	15.6	15.4	31752.0	504630.0	-.341	.733
Operating margin	9.4	19.4	9.2	27019.5	499897.5	-2.333	.020*
EBIT	5.7	11.0	5.6	29517.0	502395.0	-1.282	.200
Quick ratio	2.1	2.9	2.1	26380.5	499258.5	-2.602	.009**
Current ratio	2.2	2.7	2.1	27375.5	500253.5	-2.183	.029*
ROI	18.3	17.8	18.3	31441.0	33719.0	-.472	.637
ROA	13.5	14.0	13.4	32519.0	505397.0	-.018	.986
Equity ratio	52.3	62.1	51.9	29556.5	502434.5	-1.265	.206
Net gearing	-0.4	-0.5	-0.4	29854.0	32132.0	-1.140	.254
Debt to sales ratio	23.2	34.2	22.9	30016.0	502894.0	-1.072	.284
Working capital	8.9	4.9	9.3	23121.0	25399.0	-3.974	.000***
Sales	239.1	203.3	244.7	30364.0	32642.0	-.925	.355
Gross result	188.1	150.3	193.5	30149.5	32427.5	-1.015	.310
Operating result	13.0	20.3	12.5	31911.5	34189.5	-.274	.784
Net result	9.7	20.0	9.0	31561.5	504439.5	-.421	.674

Absolute figures in (€000)

Significance levels * p<0.05, **p<0.01, *** p<0.001

Table 39: Mann-Whitney U test of annual performance measures 2006-2008 between industries

Table 39 above shows the differences in performance between bio and IT firms, when measured using the 3-year annual average. Four out of the 15 measures show

significant differences; operating margin (bio Mdn=19.4, IT Mdn=9.2, $p=.020$), quick ratio (bio Mdn=2.9, IT Mdn=2.1, $p=.009$), current ratio (bio Mdn=2.7, IT Mdn=2.1, $p=.021$), and working capital (bio Mdn=4.9, IT Mdn=9.3, $p=.000$). The significantly higher operating margin, quick ratio, and current ratio may be caused by an accounting procedure. Depending on the type of external finance they receive, they can be shown either in the financial statement or in the balance sheet. These can improve the income, and the liquidity of the firm, hence affecting the ratios. The lower working capital of bio-firms may be caused by larger current liabilities due to their financing and debt structure.

7.3.3 Performance differences between age-groups

The performance differences between the three age groups (Group 1: n. 323, founded 1995-1997; Group 2: n: 344, founded 1998-2000; Group 3, n: 372, founded 2001-2003) were tested using the Kruskal-Wallis (K-W) test and the Mood's Median test (M-M). Both the K-W and the M-M are non-parametric alternatives to the one-way analysis of variance (ANOVA) (Pallant, 2005). In practice, it is an extension to the Mann-Whitney U test, which was used in priory tests.

For these tests that aim at exploring performance differences between age groups the average measures are used. Average measures evens out some of the variability (Avenel et al, 2005; Delmar, 2006) and allows a better comparisons of differently aged firms.

Performance measure (3-year average)	Overall median	Group 1 median (n:323)	Group 2 median (n: 344)	Group 3 median (n: 372)	K-W Chi-Square	M-M Chi-Square	Df.	K-W Sig.	M-M Sig.
Sales growth	15.5	11.9	15.4	19.6	11.012	8.590	2	.004**	.014*
Operating Margin	9.4	10.3	8.3	9.6	2.421	.954	2	.298	.621
EBIT	5.7	6.7	5.3	5.4	2.466	1.783	2	.291	.410
Quick Ratio	2.1	2.2	2.2	2.1	1.624	1.559	2	.444	.459
Current Ratio	2.2	2.3	2.2	2.0	3.660	2.573	2	.160	.276
ROI	18.3	17.4	17.3	19.1	1.680	.482	2	.432	.786
ROA	13.5	13.7	12.5	14.3	2.454	.690	2	.293	.708
Equity Ratio	52.3	57.5	51.3	48.1	6.545	6.473	2	.038*	.039*
Net Gearing	-0.4	-0.4	-0.4	-0.5	4.932	2.095	2	.085	.351
Debt to sales ratio	23.2	21.3	24.8	22.9	4.240	3.934	2	.120	.140
Working capital	8.9	8.5	9.2	9.0	.055	.941	2	.973	.625
Sales	239.1	190.2	334.2	238.1	10.148	9.855	2	.006**	.007**
Gross result	188.1	156.7	244.3	203.3	8.821	6.471	2	.012*	.039*
Operating result	13.0	15.0	13.7	11.7	.464	1.066	2	.793	.587
Net result	9.7	10.7	9.7	8.5	.642	.408	2	.725	.815

Absolute figures in (€000)

Significance levels * p<0.05, **p<0.01, *** p<0.001

Table 40: Performance differences between age groups (3-year average)

Table 40 above shows the differences between the 3-year average performance measures, between the different age groups. Among four of the 15 indicators, a significant difference can be observed (only the Kruskal-Wallis result is reported here); sales growth (Group 1 Mdn=11.9, Group 2 Mdn=15.4, Group 3 Mdn=19.6, p=.004), equity ratio (Group 1 Mdn=57.5, Group 2 Mdn=51.3, Group 3 Mdn=51.3, p=.038), absolute sales (Group 1 Mdn=190.2, Group 2 Mdn=334.2, Group 3 Mdn=238.1, p=.007), and gross result (Group 1 Mdn=156.7, Group 2 Mdn=244.3, Group 3 Mdn=203.3, p=.039).

7.4 Discussion of findings

The goal of this study was to challenge the current growth and profitability nexus within entrepreneurship practice, by answering the following research questions:

Why is it justified to replace growth with profits in entrepreneurship practice?

- (a) How do Finnish high-technology start-up firms move within a growth and profitability matrix?
- (b) What is the route for profitable growth among Finnish high-technology firms, and does the route vary depending on firm age?
- (c) How do Finnish high-technology firms perform overall?

This was conducted in two separate studies, study IIA and study IIB. Study IIA focused on the relationship between growth and profitability using Markov-chain analysis. Study IIB was of exploratory nature, focusing on the actual performance of the Finnish high-technology firms.

As discussed earlier, three previous studies have contrasted the high-growth myth and shown that instead of growth, profits are the precursor for subsequent profitable growth (Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009). These studies show that unprofitable growth is evidence of the unsound development of a firm, and emphasize the importance of choosing the right strategy from the beginning, due to the difficulties of changing strategic position (Drucker, 1982; Brännback et al, 2009; Davidsson et al, 2009).

Study II A

Using a sample of 1,039 start-ups firms in bio and IT-sectors, study II A further explored the growth and profitability relationships. Based on the studies by Brännback et al (2009) and Davidsson et al (2009), this study used a GPM to explore how firms move inside it. Firms were mapped according to their median sales growth rate and median EBIT ratio for the years 2006 to 2008. Then a Markov-chain analysis was conducted to measure the transition probabilities within the matrix (Pol et al, 1991; Brännback et al, 2009). In addition, firms were divided into three age groups in order to explore how the age of firms affect the growth and profitability relationship.

The results concur with previous studies (Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009), and show that unprofitable growth is evidence of unsound firm development, and that on the contrary, firms should be concerned with building profitability as soon as possible (Drucker, 1982; Kim & Mauborgne, 2000). The probabilities of reaching a star, a state of high-growth and high profitability, are notably better despite the age of the firm, if the firm is profitable to begin with. For comparison the likelihood for profit/growth-firms to reach star are: 0.386/0.218 (Group 1), 0.428/0.181 (Group 2), and 0.337/0.170 (Group 3). In contrast, the probabilities for profit/growth-firms to become poor are: 0.193/0.324 (Group 1), 0.181/0.486 (Group 2), and 0.206/0.333 (Group 3). As shown, the results are the same

regardless of firm age. The strongest differences can be seen for Group 2 firms, which are six to eight years old at the time of measurement; in these firms it is nearly two and a half times as likely for a profit-firm to become star, and more than two and a half times more likely for a growth-firm to become poor.

When the matrix is divided into only two performance states, those of high profitability (star and profit) and those of low profitability (growth and poor), similar conclusions can be drawn. Despite the age, a high-profitability firm will on average, with a 74% probability remain in a high-profitability position in the future. While to the contrary, a low-profitability firm, despite its age, will on average (with a 74% probability), remain in a low-profitability position also in the future.

Study II B

The second phase of this study was to conduct an exploratory analysis in order to determine how the firms are performing. The GPM only shows how firms are performing in comparison to the rest of the industry i.e. how they are growing and how profitable they are in comparison to the industry median. First of all, Spearman's rho correlations were conducted to determine the relationship between performance variables using the 3-year averages. The results were somewhat contradictory to each other.

The most widely used performance and growth measure, relative sales growth, shows *low concurrent validity to all other performance measures* (Shepherd & Wiklund, 2009). Low concurrent validity between relative sales growth and all other performance measures is observed when comparing within industries, but also between within age-groups. Despite how it is viewed, sales growth explains on average only 1.7% of the variance in any other performance variable. This indicates that performance that is reported as relative sales growth, will not translate to any other performance measure, neither growth nor profitability. Considering the wide use of relative sales growth as the only performance indicator in entrepreneurship research (see study I) and practice, the results are intriguing.

Secondly, in line with Delmar (2006), absolute sales growth shows no or low concurrent validity between all relative performance measures. Absolute performance measures are comparable with each other; strong concurrent validity is found between absolute sales and gross result, and moderate between operating result, and net result (Weinzimmer et al, 1998; Delmar, 2006; Achtenagen et al, 2010).

Thirdly, profitability measures tend to correlate moderately or strongly with other profitability measures, suggesting some comparability between measures. Both EBIT and operating result shows moderate and strong concurrent validity between most other profitability measures. Interestingly, a moderate, almost strong, relationship is observed between operating result and absolute sales, suggesting that increased sales should also be translated into operating result, contrasting the finding of Brännback et al (2010). However, when the focus is turned towards actual achieved firm-level performance, the findings are less appealing.

On average bio firms grow 15.6% per year, while IT firms grow at 15.4% per year. However, the annual fluctuations are large. In absolute numbers, the average bio firm reaches sales of 203.3 thousand Euros, while the IT firms perform slightly better reaching sales of 244.7 thousand Euros. Removing cost of goods sold, leaves bio firms with a gross result of 150.3 thousand and IT firms with 193.5 thousand Euros. Removing salaries, other selling and administrative expenses, possible depreciation and amortization, and other operating expenses, the situation becomes somewhat worrying; bio firms reach an operating result of 20.3 thousand Euros, and IT firms 12.5 thousand Euros. What is left at the end of the year is 20 thousand Euros for bio firms and 9 thousand for IT firms. These differences between bio and IT firms are not significant, and neither do they significantly differ between the three age groups. These results are unexpected, as it would be assumed that older firms would achieve significantly higher absolute sales. Similarly, it could be assumed that the profitability of bio firms would be significantly lower than that of IT firms. This is nevertheless the case.

Linking these performance figures back to theory, one can hardly say these results are evidence of a profitable business model (Kim & Mauborgne, 2000). Neither are they evidence of well-managed profitable growth and increasing profitability (Cole, 1959; Penrose, 1959). Nor are they evidence of profits that cover future unexpected changes and the seven other business objectives (Drucker 1982; 2007). The non-existent differences between firms of different ages even suggest a lack of entrepreneurial decisions and entrepreneurial profits (Schumpeter, 1934; Kirzner, 1973). Many of the financial ratios are in fact good when compared to the indicative values (see Appendix II for the indicative values) of these ratios; e.g. ROI, ROA, current ratio, quick ratio, debt to sales ratio (Asiakastieto, 2011; Leppiniemi & Leppiniemi, 2011). Both relative and absolute sales show that these firms do manage to grow, but a low EBIT and operating result indicates that these firms fail in turning these into profits (Brännback et al, 2010). It may be evidence of misguided growth (Steffens et al, 2009), where more emphasis is put on achieving growth, rather than focusing on how it is achieved (Tilles, 1963; Drucker, 2007).

The goal of study II A and study II B was to challenge the current growth and profitability nexus within entrepreneurship practice, by justifying the replacement of growth with profits. The results presented here advocate a profitability-oriented business model, where unprofitable growth is evidence of unsound firm development. The majority of high-technology firms, both bio and IT, are far from thriving in terms of profitability. Therefore, it is justifiable to replace the current norm of growth-orientation, towards one of profit. This holds true regardless of the industry, and regardless of the firm's age.

8 STUDY III- GROWTH AND PROFITABILITY FROM A STAKEHOLDER PERSPECTIVE

8.1 Growth and profitability in entrepreneurship policies

The high-growth company and growth entrepreneurship has been a central issue in European policy since the 1990's (Gibb, 2000). In 2000, the EU launched the first version of the Lisbon strategy. Since then, and later in the updated versions of the Lisbon strategy, economic growth and entrepreneurship as an enabler of growth lie at the very core (EU: Lisbon 2000; EU: 2020). In June 2008, the EU adopted the Small Business Act for Europe. This act states that the aim of the European Commission is as follows:

...boosting the emergence of high-growth enterprises by supporting the research and innovation capacity of SMEs, mainly through the increased coordination of national programmes and initiatives (EU: SBA 2008, 15). In order to meet this aim, the member states are invited to: "encourage the efforts of SMEs to internationalise and become high-growth enterprises including through participation in innovative clusters" (EU: SBA 2008, 16).

Growth entrepreneurship has attracted considerably more attention also among Finnish policy makers during the last few years (Murray et al, 2009). The Ministry of Employment and the Economy (hereafter FMEE) even has its own section for Growth Entrepreneurship on their official webpage (FMEE Growth Entrepreneurship). In 2009, the FMEE published the Government's Communication on Finland's National Innovation Strategy to Parliament. This report states the following:

Business development services and incubators will particularly target those companies which strive to generate rapid growth. The service system for growth companies will be developed as a whole, so that the roles and offerings of public operators form a clear entity. By means of taxation, experienced capital investors and business experts will be motivated to commit themselves to the development of enterprises aiming at rapid growth and internationalization. Company taxation and insolvency legislation will be developed so as to encourage small innovative businesses to generate growth and take risks, and to create prospects for serial entrepreneurship... (FMEE, 2010, 33)

What the extract above shows is that growth entrepreneurship is a central theme within the Finnish government policies, and actions are taken in order to foster the future development of high-growth businesses. In the report the word growth was mentioned 26 times. The word profit was mentioned once (in a context of private investment firms profits), but there was no mention of the word profitability.

Growth entrepreneurship policies are by no means only a Finnish trend, as all over the world public policies are set up to nurture growth entrepreneurship. A report for the Finnish Ministry of Trade and Industry (hereafter FMTI), named *'High-growth SME support Initiatives in Nine Countries: Analysis, categorization, and recommendations'*,

by Autio et al (2007) show the extent of public growth initiatives. The existence of growth entrepreneurship initiatives is truly global; in a study of nine countries from different corners of the world (Australia, Brazil, Finland, Hong Kong, Hungary, Italy, Netherlands, Spain, United Kingdom) the authors illustrate, analyze, and categorize entrepreneurial growth policy initiatives.

A total of 47 initiatives in these nine countries were identified (Autio et al, 2007). All initiatives involved public funding, and in only three cases was the share of private funding equal or significant evident, showing that governments do believe in these sorts of growth initiatives. Without going closer into the conclusions of this report, the report shows overall that the growth mantra is well established in public policies world-wide. An illustration of this can be seen by looking at the number of times growth was mentioned. In the report, the word growth was used a total of 436 times, while the word profit was mentioned four times (all of them irrelevant to the context) and profitability was not mentioned even once.

8.2 Growth and profitability in media

The public press seems to revere growth stories; stories about growing firms or stories about the entrepreneurs who have managed to achieve high-growth (Shane, 2008). Every year since 1982 Inc. magazine has published a list of the fastest growing privately-held companies in the US (originally 100, but nowadays 5,000). The performance measure used is always the revenue growth (Inc. magazine, 2011). In Canada, the Profit-200 is a similar list of the fastest growing Canadian companies (Profit Guide, 2011). Despite the name of the magazine, the performance measure used to list the companies is the five-year relative revenue growth. The reason for this is the assumed relationship between growth and profitability:

Although this issue's contents provide ample evidence that fast growth is worth charting, I am often asked why the ranking focuses on growth rather than profitability (especially given this magazine's name). Growth is the measure because it's the most reliable single indicator of business success. Profit potential varies dramatically from industry to industry, and as any business owner or investor knows, it can swing wildly from year to year due to factors largely beyond management's control. And don't get me started on the arithmetical mosaic of accounting practices. That said, long-term profitability should be the goal of any business. Every PROFIT 100 leader would agree. However, they also see fast growth as a means to a profitable end (Ian Portsmouth, editor, Profit Guide, 2011).

In Sweden, Deloitte publishes annually a list, Fast-50, of the fifty fastest growing companies. The only performance measure used on this list is relative revenue growth (Deloitte, 2011, similar reports are available for Finland, UK, New Zealand, China). Another list for the 250 largest Finnish companies, Tivi 250, is published by Tietoviikko. In this list however, the user can decide which performance measure to

use: e.g. relative or absolute sales growth, relative or absolute profitability, equity ratio, and exports (Tivi, 2011).

On a frequent basis, stories related to growth entrepreneurship are published in the press. The following are some of the headings of these kinds of stories extracted from Kauppalehti (2011), the leading Finnish business media, from the previous years (authors own translations): ‘The strong growth of companies will start to fold down’ (22.09.2009), ‘Growth-willing companies sought for a growth development program’ (06.11.2009), ‘Are women-entrepreneurs afraid of growth?’ (03.12.2009), ‘Growth companies employ’ (08.12.2009), ‘Firms are cutting down on costs, may prove difficult to re-start growth’ (18.02.2010), ‘The low growth willingness of Finnish companies baffles researcher’ (20.02.2010), ‘The Industry Investment invest 10 million in a growth fund’ (22.02.2010), ‘Growth requires courage (22.04.2010), ‘Students are getting excited about growth entrepreneurship’ (05.05.2010), ‘Is pier-Seppälä the best growth entrepreneur in the world?’ (01.06.2010)’, ‘The minister wonder: Businesses are started but they do not grow’ (26.10.2010), ‘Siilasmaa rings the alarm bell- growth companies are the Finnish lifeline’ (12.03.2011). The common denominator for all of these articles is that they almost always praise world growth, and mostly completely disregard the notion of profitability; presumably, because it is taken as a self-evident outcome of high-growth, or because the two are seen as equivalent.

8.3 Stakeholder views on growth and profitability

Entrepreneurs do not live in a vacuum (Cole, 1959; Gartner, 1985; Aldrich & Martinez, 2001; Davidsson, 2005; Carsrud & Brännback, 2007; Levie & Lichtenstein, 2010). Rather they are part of a larger whole; a network or an eco-system (Carsrud & Brännback, 2007) or a social setting (Cole, 1959). The underlying concept with these different terms is fundamentally the same: the existence of various stakeholders that directly or indirectly have an effect on a firm’s operation (Donaldson & Preston, 1995). As suggested by the resource-dependence theory a firm is influenced by the demands by those that provide the firm with important and necessary resources. The more important they are the more a firm should attempt to respond to that demand (Frooman, 1999).

As shown in the previous section, it is extremely difficult for a firm to change its strategic position. This was also acknowledged by Drucker (1982). In study II A (chapter 7.2) it was shown that firms are most likely to remain in the same growth and profitability state, as where they were at an earlier observation period. This emphasizes the importance of making the right strategic choices from the very beginning. Earlier research has pointed out evidence of misguided growth (Steffens et al, 2010), and a distorted view of growth and profitability among start-ups (Brännback et al, 2010). High-technology firms are research-intensive and therefore the role of capital, and other resources, plays a critical role during the start-up process (Renko et al, 2009). The providers of these resources, policy makers and

investors, put demands on the firm. The more critical the resource, the more the firm needs to try to satisfy the demands of the provider of that resource (Frooman, 1999).

As discussed earlier, high-growth has achieved the solid attention of various stakeholder groups (Fischer and Reuber, 2003; Shane, 2008), public policy (Gibb, 2000; Autio, 2008; EU: Lisbon 2000; EU: 2020; EU: SBA 2008), a vast number of public media (Inc. Magazine, 2010; Affärsvärlden 2010, Tivi 250; Profit 100, 2010), not to mention the entrepreneurs themselves (Tilles, 1963; Gartner, 1997). It is an all-pervading theme, which has been found to affect the behavior of the stakeholders surrounding the firm (Drucker, 1982; Birch, 1987; Gibb, 2000; Shane, 2008).

Therefore, this exploratory, qualitative research aims at developing a deeper understanding of the views of the stakeholders surrounding the Finnish high-technology entrepreneurs. The stakeholders studied are all explicitly interested in the growth of the firm, but fundamentally in different ways; they all have different social realities and meanings (Leitch et al, 2010a).

Given the number and varied nature of the stakeholders interested in growth it is to be expected that differing meanings are attached to the socially constructed phenomenon, making discourse between them problematic, with considerable potential for confusion and misunderstanding. If theory is to advance and be applicable in practice, this necessitates dialogue between all key stakeholders, who, moreover, need to be clear and explicit about what they understand entrepreneurial and business growth to mean and to unambiguously articulate the definitions that they employ in their discussions, reports, and research. (Leitch et al, 2010a, 258)

A number of studies have urged for a more holistic approach to entrepreneurship research (Gibb & Davies, 1990; Hofer & Bygrave, 1992; Carson & Coviello, 1996; Leitch et al, 2010a). There has been a debate among researchers that as entrepreneurship is a holistic process, a holistic research process should therefore be the proper way of studying it (Hindle, 2004). The standpoint adopted in this study is naturally not of total holism. It is rather a view that takes into account a larger number of the actors, and multiple aspects, affecting the entire entrepreneurial process (Bygrave and Hofer, 1991); something called requisite holism (Rebernik & Mulej, 2000).

Rebernik and Mulej (2000) suggest that requisite holism takes into account only the essential viewpoints of a larger whole. What exactly, these essential viewpoints are, may vary (Rebernik & Mulej, 2000). The stakeholders studied here are those that are believed to have the largest impact on the firm. In addition to entrepreneurs themselves, these include policy makers, public investors, and venture capitalists (adapted from Gibb, 2000). Naturally, there are a number of other stakeholders influencing the firm, such as suppliers, customers, communalities, employees, trade associations, and political groups (Donaldson & Preston, 1995). However, the ones chosen here are those that are generally believed to have the strongest influence on

the firm in the studied context and hence they were selected: entrepreneurs, venture capitalists, public investors, and policy makers (see figure 5 below).

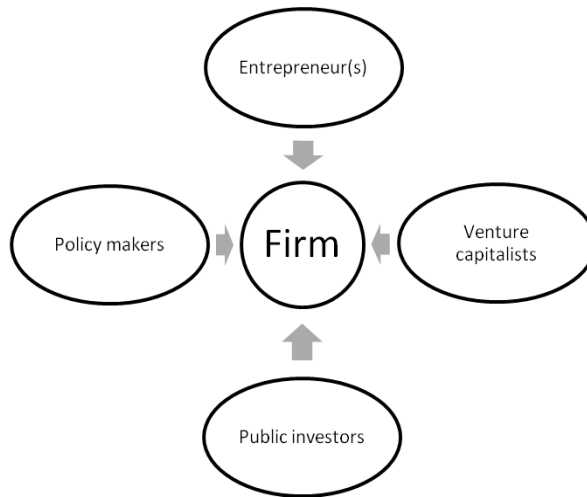


Figure 5: Stakeholders influencing the firm

8.4 Methodological approach

Richards (2005) suggests that all qualitative research should contain two components, a purpose, and a goal. The purpose of this study is to explore the perceptions of different stakeholders concerning the relationship between growth and profitability. Based on the current existence of a high-growth myth, it can be assumed that perceptions reinforcing this myth will be evident. The goal of the study is to challenge the current growth and profitability nexus among stakeholder perspectives by answering the following research questions:

Why is it justified to replace growth with profits among entrepreneurship stakeholder perspectives?

- a) How do the stakeholders conceptualize performance?
- b) How do the stakeholders understand the relationship between growth and profitability and what factors affect these perceptions?
- c) What are the arguments for a growth-oriented strategy and a profit-oriented strategy?

The use of qualitative methods within entrepreneurship has been urged for some time (Carson & Coviello, 1996; Gartner & Birley, 2002; Cope, 2005; Leitch et al 2010b). The notion behind this is that not all questions can be answered with a positivist or empiricist view. Sometimes, a more interpretive view will help in gaining a more

holistic understanding of the phenomenon (Gibb & Davies, 1990; Hofer & Bygrave, 1992; Carson & Coviello, 1996; Leitch et al, 2010a, b). Therefore, the aim is not to make generalizations based on the data, but rather to obtain a more holistic view on the growth and profitability nexus.

In order to understand how different stakeholders perceive the relationship between growth and profitability, interviews were conducted during the spring and summer of 2009.¹¹ The interviews had two purposes. Firstly, they had a fairly specific and beforehand decided purpose indicating of a more survey-based interview (Marschan-Piekkari & Reis, 2004; Alvesson, 2004). This part endeavored to understand how the respondents measure growth and profitability, what the perceived relationship between the two is, and in what sort of situations either of them should be preferred. The questions have characteristics of structured questions, but still no pre-defined answers are provided. This section relied on an almost positivist or neo-positivist view and the interview was seen solely as a pipeline for transmitting knowledge (Alvesson, 2003; Hindle, 2004).

Secondly, the aim of the interviews was to understand why potential perception differences exist and what affects these have, leaning towards a more interpretative approach (Hindle, 2004). These questions were of a more qualitative nature, but still semi-structured (Marschan-Piekkari & Reis, 2004) (see Appendix III for a translated version of the interview manual).

8.4.1 Selection of respondents

The primarily sampling strategy selected was purposive sampling (Curran & Blackburn, 2001). The context in Finland within these industries is relatively small and therefore it is known which stakeholders play a large role within the industries, i.e. the so called *key informants* (Curran & Blackburn, 2001). Consequently, purposive sampling was found to suit the purpose of this study very well.

In order to acquire access to persons within these stakeholder groups, those key informants who were known beforehand, were contacted first. These respondents were chosen based on their known experience in the high-technology industry. In addition to purposive-sampling, snowball-sampling was used whenever a respondent recommended another person with considerable experience in the field (Curran & Blackburn, 2001; Malhotra, 2004).

The number of individuals to be interviewed was not decided beforehand, but was more dependent on the newness of the information derived from each additional interview (Miles & Huberman, 1994). Once the same kinds of themes started to arise repeatedly from the data, saturation was reached.

8.4.2 The interview process

¹¹ Parts of this study were presented at the AGSE 2010 Conference (Sunshine Coast, Australia), referred to as Kiviluoto et al (2010).

All respondents were first contacted by phone, followed by an e-mail stating the purpose of the study. In this description of the purpose, no specifics were given but merely an overall statement that the focus of the study was growth and profitability in high-technology firms. All 23 respondents contacted were willing to participate in the study, apart from one who declined. The one declining recommended a colleague instead in the same organization with better knowledge of the industries in focus. Therefore, 23 people were interviewed.

All the interviews were conducted between March and July 2009. Five test interviews were initially conducted with different stakeholder groups: one venture capitalist, two entrepreneurs, and two policy makers. These interviews were conducted with two or three people conducting the interview, and after each time, discussions were held about the content of the interviews. Questions were revised and improved accordingly.

The questions were divided into four sections: respondent background, industry characteristics, growth and profitability, planning and finance. Different sections were used in order to keep the subject of the discussion clearer to the respondent. A total of 33 questions were asked. The number of questions may seem large, but it depends on the type of questions asked; all questions were semi-structured, without any pre-set response alternatives. However, some questions could be answered very briefly: *"Is growth a good measure of success (question 16)"?*

After the five test interviews, an additional 18 interviews were conducted with venture capitalists, public investors, and industry experts. All interviews were recorded, and later transcribed and coded with QSR NVivo 9 software. The coding process included descriptive coding, topic coding, and analytical coding (Richards, 2005).

8.5 Findings

Respondent*	Time of interview	Duration in minutes	City	Location
James, entrepreneur	1.7.2009	63	Turku	University
John, entrepreneur	17.3.2009	57	Turku	Firm office
Robert, entrepreneur	24.3.2009	78	Turku	Firm office
Michael, entrepreneur	18.3.2009	72	Turku	Firm office
William, public investor	17.6.2009	81	Helsinki	Firm office
David, public investor	29.6.2009	66	Helsinki	Firm office
Mary, public investor	15.6.2009	42	Helsinki	Firm office
Richard, public investor	26.6.2009	60	Helsinki	Firm office
Charles, public investor	26.6.2009	33	Helsinki	Firm office
Joseph, public investor	12.6.2009	50	Turku	University
Thomas, policy maker	25.3.2009	38	Turku	Firm office
Patricia, policy maker	23.6.2009	42	Helsinki	Firm office
Christopher, policy maker	24.3.2009	50	Turku	Firm office
Daniel, VC	8.6.2009	49	Helsinki	Firm office
Paul, VC	16.6.2009	49	Helsinki	Firm office
Mark, VC	9.6.2009	80	Helsinki	Hotel lounge
Donald, VC	22.6.2009	52	Turku	University
George, VC	17.6.2009	42	Helsinki	Firm office
Kenneth, VC	15.6.2009	48	Helsinki	Firm office
Steven, VC	8.6.2009	37	Helsinki	Firm office
Edward, VC	16.6.2009	44	Helsinki	Firm office
Brian, VC	11.6.2009	46	Tampere	Firm office
Ronald, VC	17.6.2009	48	Helsinki	Firm office

* The names of the respondents have been changed to ensure anonymity

Table 41: Interview time, duration, and location

Table 41 above shows general descriptive information about the interviews. Four of the interviews were with entrepreneurs, six with public investors, three with policy makers, and ten with venture capitalists. The large number of investors, both public and private, depended on the reasons discussed below.

Access to finance can be the principal constraint for a young high-technology firm (Harrison et al, 2004; Shepherd & Wiklund, 2005; Murray et al, 2009; Renko et al, 2009; Schneider & Veugelers, 2010), and financial capital can have a direct effect on subsequent profitability (Coleman, 2007). While it can be argued that not all firms aim at receiving external finance, it can be argued to be the current norm for growth-oriented firms. There is a limit to how rapidly a firm can grow with internally generated funds (Churchill & Mullins, 2001; Gilbert et al, 2006). After reaching that limit, the firm is dependent on external funding to finance further growth. Dependence on external capital also creates demands on the firm. Calls for understanding the indirect effect of external capital have been made: *“We suggest there is a need for additional research that enhances understanding of how financial capital*

enables or constrains the strategic decisions entrepreneurs make and ultimately the growth of the firm" (Gilbert et al, 2006, 942). Therefore the role of investors was found especially important (Curran & Blackburn, 2001), and hence they are over-represented in the sample. Secondly, data saturation was not reached as early as for other stakeholder groups, therefore requiring a larger number of interviews to be conducted.

A total of 19 interviews were held at the office of the respondent. In four cases, the interview was held at another location due to the preference of the respondent: three times the interviews took place at the University and once at a local hotel lounge. A total of 22 interviews were held in Finnish, and one in Swedish. All interviews were scheduled for an hour, but the shortest was 37 minutes and the longest 81 minutes. On average, the interviews lasted 53 minutes, which finally added up to more 20 hours, and nearly 130,000 words, of recorded and transcribed interviews.

8.5.1 Structure of findings section

The following results section is partly based on the structure and content of the interview, and partly on the themes that emerged from the data during the analysis process, as suggested by Richards (2005). First of all the focus will be on performance: how to measure it and how to determine business success.

Secondly, the focus will be on planning, its importance, and the content of the plans. Thirdly, in section II of the thesis the GPM was introduced; a categorization of firms' into four performance categories depending on their growth and profitability performance, and in relation to the competition. The GPM was also shown to some of the respondents, in order to see how they regarded start-up strategies, and how they eventually perceived profitable growth to be achievable.

Fourthly, the rationalizations that emerged from the data for a pro growth orientation are explored: profits, value, credibility, strategic advantages, and raising finance. Finally, the rationalizations that emerged from the data for a pro profitability orientation are explored: healthy business, independence, control, intrinsic value, and self-sustained growth. Subsequently, the structure of the findings section is as follows:

- **Performance;** measuring growth, measuring profitability, determining business success
- **Planning;** planning importance, planning for growth and profitability
- **GPM;** start-up strategies, the route to profitable growth
- **Pro-growth arguments;** profits, value, credibility, strategic advantages, raising capital
- **Pro-profitability arguments;** working business model, control, risk management, self-sustained growth

Respondent	Background, education, experience, expertise
James, entrepreneur	James holds a PhD degree in molecular biology and has also studies business. He worked at different managerial positions in a medical company for 20 years, and has subsequently been an entrepreneur and consultant for 16 years.
John, entrepreneur	John holds a PhD degree in biochemistry. He has worked as a researcher in the field for 10 years both in Finland and in the US. Since then he has been an entrepreneur for 20 years in the same sector.
Robert, entrepreneur	Robert holds an MD degree. He has worked in a pharmaceutical company for 10 years, both in Finland and internationally. Afterwards he has been an entrepreneur of a pharmaceutical company for 12 years.
Michael, entrepreneur	Michael holds an M.Sc. degree. He has worked in the medical field for 15 years and since then been an entrepreneur within the Finnish biotech sector.
William, public investor	William has an M.Sc. Degree in Engineering and a Licentiate in chemistry. He has been an entrepreneur in a technology company, but is nowadays a public investor within the field of biotech and technology
David, public investor	David holds an M.Sc. degree in business and an MBA. He has been a capital investor both in Finland and internationally and is nowadays a public investor.
Mary, public investor	Mary holds an M.Sc. degree in engineering and an MBA. She worked within the telecom industry for eight years and then worked as a public investor for eight years.
Richard, public investor	Richard holds an M.Sc. degree in business. He has worked 30 years with a financing; 20 years in a bank, and ten years as a public investor.
Charles, public investor	Charles holds an M.Sc. degree in engineering. He has worked in the energy industry for nearly 20 years and after which he became a public investor, in the field of life-sciences, for ten years.
Joseph, public investor	Joseph holds an M.Sc. in biochemistry. He has worked 12 years abroad in various high-technology companies. For the past seven years, he has worked as a public investor in the healthcare industry.
Thomas, policy maker	Thomas holds a PhD in biochemistry. He has been a CEO of a biotech company for 14 years and after that worked as a venture capitalist. Nowadays, he is a policy maker within high-tech
Patricia, policy maker	Patricia holds an M.Sc. degree in chemistry. She has made a career working various associations within the field of chemistry and biotechnology.
Christopher, policy maker	Christopher holds an M.Sc. degree in engineering. He started his career as a consultant and capital investor, but for the last two years he has worked as a policy maker within healthcare and biotech.
Daniel, VC	Daniel holds an M.Sc. degree in financing. He has worked abroad in multinational VC firms for four years, and then for 12 years as a VC in Finland, focusing on pharmaceutical and med-technology firms.
Paul, VC	Paul holds an M.Sc. degree in both law and financing. He has worked as a financial director in a number of firms and then for several years as a VC focusing on various high-technology firms.
Mark, VC	Mark holds an M.Sc. degree in engineering. He has worked within the forestry industry for 15 years, but moved after that into the VC business. Now he has been a VC for four years, focusing on bio-technology and technology.
Donald, VC	Donald holds an M.Sc. degree in engineering. He has worked in various managerial positions in a medical company for 20 years, both nationally and internationally. Now he has been a VC focusing on high-technology

	for about ten years.
George, VC	George holds an M.Sc. degree in Law. He has worked for more than 20 years in the publishing business and since then for three years as a VC, focusing on technology firms.
Kenneth, VC	Kenneth holds an M.Sc. degree in engineering. He has worked his entire 20-year career as a VC, focusing specially on IT, engineering, and biomaterials.
Steven, VC	Steven holds an M.Sc. degree in business. He has worked in various managerial positions in IT and healthcare. After that he has worked as a VC focusing on IT and medical-IT
Edward, VC	Edward holds an M.Sc. degree in politics. He worked five years as a management consultant before moving over to become a VC. Now he has been a VC focusing on IT.
Brian, VC	Brian holds both an MD degree in biochemistry and an MBA. He has worked for 15 years abroad in managerial positions within a pharmaceutical company. Since then he has been a biotech entrepreneur and for the past five years he has been a VC focusing on high-tech
Ronald, VC	Ronald holds an M.Sc. degree in accounting. He has worked 15 years as an accountant and after that for eight years as a VC, focusing on various high-technology industries.

Table 42: Respondent backgrounds

8.5.2 Performance

In entrepreneurship research, little consensus seems to exist as to how to measure performance (Murphy et al, 1996; March & Sutton, 1997; Weinzimmer, 1998; Brush et al, 2008; Achtenagen et al, 2010). With regard to performance in privately-held firms, or especially privately-held high-technology firms, the task is seen even more difficult (Birley & Westhead, 1990; Bloodgood, 1996; Bantel, 1998; Robinson, 1998; Zahra, 2002; Gilbert et al, 2006; Kiviluoto et al, 2011). Therefore, questions about performance were included as parts of the interview.

Measuring growth

All of the respondents were asked how they measure growth. The most common measure of growth was sales growth and that was mentioned by a large majority of the respondents (17, 74%). Sales growth was found to be evidence of market acceptance and a market pull. However, for research-oriented firms whose business model is based on another business-logic, revenue growth was found inappropriate. Revenue growth was found inappropriate as the firm may not have a product to sell, but instead is focused on basic research. In such circumstances, more qualitative measures ought to be preferred, such as meeting milestones, meeting targets set, number of patents, and number of clients.

Interestingly, only four respondents mentioned employment growth as a growth measure; a growth measure found to be disliked by entrepreneurs (Achtenagen et al, 2010), but preferred by some research (Gilbert et al, 2006). One of these four respondents was a venture capitalist: *“Growth is defined by the expansion of the business; the business manages to sell more, and therefore, also adds more employees”* (Ronald, venture capitalist). The second one was a public investor who primarily preferred growth.

However, the availability of capital was seen to affect the situation: *“Well okay, before that (referring to sales growth) depending on whether there is capital backing it up, employment growth will be preferred primarily”* (Mary, public investor). The two remaining respondents were both policy makers. Neither of them solely referred employment growth, but at least saw it as an alternative *“I would define growth simply either by the growth in employment, or then by growth in sales”* (Christopher, policy maker).

Two respondents, both venture capitalists were critical about measuring growth in terms of employment. *“For me growth is sales growth. That if the number of employees growth is not real growth to me. I do not think that employment should grow before your sales grow, because that is a death-road”* (George, venture capitalist). Similar arguments were highlighted by another venture capitalist.

A number of respondents mentioned that sales growth is not relevant for research-oriented firms, but instead other more context-specific measures should be used. Brian did not agree with these opinions: *“I do not think that growth should be measured in terms of patents, nor in number of employees, because the only real for of growth is sales growth”* (Brian, venture capitalist). Similar opinions were shared by another venture capitalist, Donald. Donald argued that it is idiotic to talk about firm sizes in terms of employees. According to him, the number of employees usually only illustrates inefficiency:

It is important to think of efficient ways of doing things, and smart ways of doing things, instead of just adding employees in the first place. This is a very common problem in growth companies: they pretend to be so busy that there is no time to do anything else but to add employees, so that soon they will just fill up the corridors. Therefore, in the first place, time should be spent thinking about how things can be done more efficiently. First thereafter the employment-tool should be used (Donald, venture capitalist)

Measuring profitability

When respondents were asked, how profitability should be measured in high-technology firms, the traditional accounting-based measures were the most frequently mentioned. Eight of 22 (36%) mentioned EBIT, EBIT-DA or EBIT-ratio as the best measure of profitability. In addition, four (18%) respondent preferred ROI and six respondents (27%) simply stated profits or the-bottom-line (referring to the annual net result).

Even if traditional accounting based measures were preferred, it was still emphasized that the most important thing is to know what is being generated with the money invested: *“Especially among SMEs and among investors, it is the ROI. But if we look at the firm internally, well no, also there it is the same thing; to know what can you accomplish with the invested money”* (James, entrepreneur).

Other stakeholders highlighted industry-specific measures and preferred qualitative measures instead of accounting-based measures; products in pipeline, meeting milestones, cashflow management, and subjective measures: *“Cashflow is very central, because that’s what’s always bad (jokingly). As a starting point it’s that, especially the moment when you start activating the R&D expenses the last line becomes distorted. That is why in small companies I’d say cashflow and cashflow management”* (George, venture capitalist).

Growth as business success

All respondents were unanimous that success cannot be measured only in terms of sales growth; directly criticizing the dominant performance measure in entrepreneurship research (see study I). Growth can be seen as a measure of success when it is the outcome of a strategic move; a temporary state where growth has been pursued at the expense of profitability to achieve a strategically favorable position. All stakeholder groups agreed on this, but among the venture capitalists views were somewhat divided.

James, an entrepreneur emphasized the danger of self-evident growth: *“Among this types of SMEs where we have these kinds of firms so of course...until a certain point yes. But it cannot be only one measure; you need to see how you are growing... you can buy yourself growth, but that is unhealthy”* (James, entrepreneur). Policy makers highlighted the fact that growth can be evidence of success, because it is fairly uncharacteristic of Finnish firms in general. However, both policy makers and public investors emphasized specifically profitable growth as the foremost measure of success: *“Profitable growth is what you need to pursuit for”* (Thomas, policy maker). *“Growth is one measure of firm success, but a successful firm grows profitably”* (David, public investor). Some venture capitalists were very strong in their opinions that growth is a measure of success, but at the same time many emphasized strategic choices and the addition of other performance measures not only growth.

In addition, the control and effect of various stakeholders was brought into the context when discussing growth as a success measure. Public investors, for example, could provide such back-up for the firm, that instead of focusing on building profitability, they could focus on growth. Such arguments relate back to the perceived value-increasing effect of growth: *“If the firm pursuit unprofitable growth then someone agrees that it increases value. Therefore only growth does not tell the entire story. There can for example be such partners as TEKES¹² backing up the firm, allowing a pursuit for growth without the need to consider profitability...”* (Paul, venture capitalist).

Determining business success

When the respondents were asked about the best measures of business success among start-ups, the multidimensionality of performance was properly realized. None of the stakeholders preferred a single measure, but always mentioned a number of context-specific measures, preferably a combination of them.

¹² TEKES is a publicly funded expert organization that provides finances for research, development, and innovations. In 2010, they funded projects for €633 million (Tekes, 2011).

Michael, an entrepreneur, emphasized the role of a working business model and the ability to show successful progress: *“The best success indicator is to show actual results; products and concepts that you can show that actually work. First in one environment, and then continuing to others i.e. that you can show progress”* (Michael, entrepreneur).

Patricia, a policy maker, considered the difficulty of determining success during the R&D phase where the firm has no products to sell and therefore no income *“Well, they have nothing to sell. Alternatively, they sell projects. So basically, you could say it is about valuating the project, and finding out what they are worth. So it is not an easy task, but of course there are consultants to do that job”* (Patricia, policy maker).

The difficulty of determining success was shared by a number of stakeholders, who thought that there is no point in even talking about profitability in firms where R&D phases may be more than ten years long. On the other hand, it is exactly during this long capital-intensive process that some thought is the most problematic issue. David, a public investor, offered a solution for this:

Also during your R&D phase, you should ensure your firm is not unprofitable. It happens through some sort of side-business, e.g. by selling consultancy services, or whatever is possible given the firms core competences. Alternatively, the firm can sell products that are produced by someone else; with that, you will ensure at least some positive cashflow, hence contributing to the firm making slightly less loss (David, public investor).

When continuing the discussion on how to measure business success, David strongly criticized the lack of business knowledge among Finnish high-technology firms. He argued, that one of the major reasons why so many potentially successful firms fail, is the lack of business knowledge within the firm; mostly caused by the founders desire to hold on to ownership at any cost. As a solution for this, and according to him the best indicator of success, is the partnering ability of the firm:

The best measure of success is meeting milestones. Therefore, I personally prefer early partnering with a big pharmaceutical company, because that will bring discipline into the firm; it will bring in a sort of mile-stone oriented structure into the firm, which makes it difficult to start wondering around. It gives a clear road-map that aims straight at the target, without the need to pass through the jail, talking in terms from Monopoly (David, public investor).

The venture capitalists also followed similar pattern in their preferences for assessing firm performance. While some preferred pure accounting-based measures such as EBIT or EBIT-DA, or a combination of profits and growth, their inaccuracy during early stages was acknowledged. Therefore, a number of qualitative indicators were preferred: meeting set targets, efficiency, market position and competitive advantages, project prospects etc. Overall, the venture capitalists preferred a case-by-case approach and emphasized the difficulty and danger of over simplifying when talking about a multi-dimensional concept as performance.

8.5.3 Planning

The role of planning has been found to enhance the organizing activities within start-up firms. Therefore, they have been found to reduce the likelihood of failure (Delmar & Shane, 2003) and enhance the possibilities of long-term growth (Berry, 1998). Most importantly, as shown in the results of study II of this thesis, firms are very unlikely to move from one strategic position to another. Therefore, it is of great importance to make the right strategic decisions from the beginning. In order to explore the kinds of strategies entrepreneurs start with, a number of planning related questions were asked.

Importance of planning

The role of business plans and planning among high-technology firms was found central. Out of 23 respondents, a total of 13 (57%) regarded planning as absolutely crucial, as a matter of life-or death. This view was shared by all four stakeholder groups. While some emphasized that planning is of foremost importance for the firm itself in order to create a commonly shared objective among the people, others brought in other stakeholder groups.

John, an entrepreneur, emphasized the importance of planning for the regulatory authorities and argued that without proper planning the time-to-market would be significantly lengthened. Christopher, a policy maker, however brought in the role of financiers: *"Well, it is very important. You are not going to receive funding if you don't plan"*.

Planning for growth and profitability

All respondent were asked what the entrepreneurs plan for in the first place, whether it is growth or profitability. In total, 21 respondents were asked this question; 15 (71%) contended that entrepreneurs plan foremost for growth, and the remaining six did not have an opinion. In other words, *none of the respondents thought entrepreneurs plan for profitability*.

Surprisingly strong views were expressed over the statement that it is entrepreneurs that have an unhealthy view on growth. It was argued that is it the entrepreneurs that create the utopian growth plans and hockey-stick growth curves. Entrepreneurs themselves did not see the situation as strongly. *"I could say the on average where I am they plan for growth. But when you reach a certain point you start to think about profitability...the profitability planning, as surprising as it is, usually comes fairly late"* (James, entrepreneur).

Policy makers on the other hand, seemed to acknowledge that entrepreneurs plan for growth. However, they argued that the plans are made for someone else:

Growth, growth! Profitability comes later on! You have probably seen these applications where firms approach venture capitalists; that is where you find these hockey-stick things...During later years you start to think about profitability. In the beginning it's just go-go (Thomas, policy maker).

Furthermore, the point that growth contributes to value increase was highlighted by policy makers. *"I think that a lot of young, small companies they dream more about growth, or at least they think that it is more valuable than profitability"* (Patricia, policy maker). Patricia continued that the reason firms do so, is that they simply do not have sufficient levels of business knowledge within the firm. This was something found to characterize the Finnish high-technology sector in general.

The perception of growth being of larger value for the firm than profitability was also highlighted by public investors. Fairly strong views were given about unhealthy perceptions about growth:

Businesses in general do not think about profitability, they think about growth, nevertheless it being wrong. They should think through the cashier...Firms have the great illusions that once you achieve sufficient levels of critical mass, funding will just appear from somewhere (David, public investor).

Well at least these technology firms they think more about growth. If a technology firm needs to think about profitability it usually depends on that they really are forced to do so; the flow of capital suddenly starts to slow down (Mary, public investor).

Growth has somehow become self-evident. They just put multiplications in their Excel sheets suggesting that they are going to double their sales every year, funny. In addition, that planning mostly happens at the expense of profitability, but that is how it unfortunately is (Joseph, public investor).

Moreover, venture capitalists agreed that firms tend to pursue growth, while profitability is of secondary importance. Kenneth suggested that growth comes first because that is the perceived pre-requisite for profitability:

I think that they plan more for growth, profitability is like the final outcome of it; you either have it or you don't, but it shows how you finally are doing. It is not as if you would pursuit it or push towards it, what is the case you do with growth (Kenneth, venture capitalist).

Mark, on the other hand emphasized the management's inability to see the big picture: *"The major focus with firms is growth, e.g. if you let the management plan for themselves the focus will be on growth. They somehow think that profitability will automatically come..."* (Mark, venture capitalist)

Edward contented that on the one hand, entrepreneurs do plan foremost for growth, but on the other hand, that is because that is what venture capitalists expect them to do:

They do plan for growth. At least the firms we meet, or the ones we continue discussing with. Very often when we get material from a company, they have very modest growth plans. Even if it would seem nice, those we do not even meet. Of course, on the contrary, the risk is that then you get these utopian

hockey-sticks that they will have hundreds of millions in revenue after three years (Edward, venture capitalist).

8.5.4 Growth and profitability matrix

The growth and profitability matrix (GPM) was presented in study II of the thesis (see figure 2, chapter 5.2.2). The same matrix was shown to a number of the respondents. Respondents were then asked a number of questions about the matrix, concerning the most appropriate start-up strategy and then what strategies ought to be used in order to reach the star-position (high profitability and high-growth).

GPM- start-up strategy

The entrepreneur, James, who answered the question about start-up strategies, did not wish to generalize. He thought that either a profit-oriented strategy or a growth-oriented strategy might be the most appropriate start-up strategy. He emphasized the danger of being in a position of low-growth and low-profitability, which was evidence of a firm likely to go bankrupt:

You have to analyze it case-by-case, also from the view of the firm, because the answers may differ. But when you have this position, one of profitability and you want to grow, then you have significantly more choices to choose from, e.g. acquisitions, because such a firm will more likely also receive external funding. A growth company will not due to the attitudes of management (James, entrepreneur).

In the same discussion, James also mentioned the existence of a growth mantra, how growth has become self-evident. He suggested that the general perception is that achieving high-growth, is something that others will admire; an aspect already identified a long time ago (Tilles, 1963).

The policy maker, Patricia, however, thought that the diagonal transition from poor to star is most likely in high-tech. She thought that most firms are in a poor-position and once they start to move, they are most likely to do so diagonally. All four policy makers, who answered the question, thought that the business-model for Finnish high-technology firms is principally built on working towards high-growth. Within the GPM-framework, high-growth would subsequently bring profitability, starting the firms' transition towards star. Again, the role of stakeholders, and their demands on the firm, was brought into the context.

Well I think some of them are the types that they don't move anywhere. And those that do, primarily seek to go from poor to growth and then they dream of one day becoming star. But the question that arises is, is that the right path? (William, public investor)

It is most likely here through growth, well, that is what the risk capital model is built on; the thoughts about aggressive growth, you grow through risk-capital

until you reach certain volumes, and then your business will turn profitable (Mary, public investor).

Venture capitalists themselves did not mention the existence of such a high-growth demand. Most of them considered the strategy from the point of creating a sustainable business. However, some did acknowledge that high-growth has been the norm, at least at some point. Daniel suggested that the start-up strategy of IT firms has been one that builds on attaining high-growth with low profitability. This is fostered on the assumption of growth being the pre-requisite of profitability:

That is where all IT firms and others were; their growth went like this (showing a steep upward sloping curve), but at the same time their profitability went like this (showing a steep downward sloping curve) and none of that ended well. I think that you should go for profits that build the solid foundations for further growth (Daniel, venture capitalist).

The heterogeneity of firms was pointed out on several occasions. Therefore, the respondents did not want to show a preference for one certain strategy over another, but instead emphasized a case-by-case approach. Consistent with Penrose (1959) they argued that universal start-up strategies that will work for all firms, in all situations, could be impossible to find. Those that argued for a primarily growth-oriented strategy high-lighted profitable growth, in opposition to growing unprofitably:

Yes, growth is based on that you sell a product or service which has demand, and which have so much value or such a competitive advantage, that the customer will buy it for a price that is profitable for the business (Daniel, venture capitalist).

Overall, all the venture capitalists saw the poor position as a very worrying state and which would need a thorough investigation of its causes. From the point of creating a sustainable business, many emphasized the more profitability-oriented strategy:

If you are there (low profitability state) then, so to say, you need to start from scratch and get rid of the excess costs. Then you need to go completely another path and secure your profitability and capability of surviving. I am fairly certain that if this is from where you start, it is pretty unrealistic to go through growth (Ronald, venture capitalist).

I would go for profitability. To get the basic levels of profitability all right...That is what you should focus on. Of course, you should focus also on profitability when you grow, but that is the path I would choose (George, venture capitalist).

GPM – strategy to reach the star position

All respondents were asked which position; growth or profit would be preferable to reach a star position. This question was asked to understand better, which one they ultimately preferred the most, growth, or profitability. Results were fairly mixed and

a number of arguments were given for preferring both the growth state and profit state.

The entrepreneur that answered the question argued for profitability *“Yes, if we are in the state of a certain amount of critical mass, and not in the so called self-supporting state”* (James, entrepreneur). The arguments were fairly contradictory. On the one hand, a highly profitable firm will according to James, be the firm that reaches a star position; while on the other hand to reach the point of high-profitability, the firm needs to have gone through a high-growth, low-profitability state. This, yet again, shows the perception of growth being a pre-requisite of profitability.

Patricia, a policy maker, emphasized two from each other independent growth-strategies; that of self-sustained growth and that of value-creating growth.

I say what I have already said before that I would prefer profitability and through profits you will grow...that is at least the more secure way. But on the other hand there are plenty of firms that do not want to grow themselves but instead want to develop the firm into a state where its value is high enough to make be able to sell it. Then it is through high-growth instead of profitable low-growth, that you will be able to make it more attractive in the eyes of the buyer and hence increase the firms' valuation (Patricia, policy maker).

Public investors also gave fairly contrasting views. On the one hand, a state of high-profitability is seen as a more secure state and as giving more flexibility for future decisions, while on the other hand, low-growth was seen as potential evidence of low market acceptance or a saturated market.

As I said, if you have a firm which cost-structure is wrong, then you need to think how to fix it in order to turn it around. On the other hand, if you do have the correct cost-structure, and low growth and high profitability, then what does the low growth depend on? It may be that the market expectations are much more difficult to handle than the internal cost-structure (David, public investor).

To this you could almost answer that it depends. We just talked broadly about these different types of firms, but if I now speak more safely, it is safer to go from profit, because then you know you have a healthy business model. It is easier to replicate a healthy business than a gazelle. After all, this gazelle-growth can easily be nothing but a bought illusion (Charles, public investor).

Some respondents also repeatedly referred to the life-cycle model and the assumptions it is built upon.

If we go through life-cycle thinking, so at least according to theory it goes so that growth comes first and profitability will follow, so therefore I would assume that it is through high-growth and low profitability that you will reach the star position (Mary, public investor).

Venture capitalist made similar conclusions as public investors about the advantages and disadvantages of both a high-growth and a high-profitability state. Two venture capitalists gave very short and unambiguous answers: "*Growth!*" (Edward and Donald, venture capitalists).

Paul, also a venture capitalist, argued on the other hand that it is a pure impossibility to generalize which of the two is to be preferred. He argued that ultimately the success of a firm depends on too large a number of factors. Those that argued for profitability saw the state of high profitability to open more possibilities; to enable self-sufficiency, but also as a security against bankruptcy during fluctuating periods:

Those (profit) firms have the decisions in their own hands, especially during these kinds of market situations when it is difficult to raise new finance. During these times, the profitable firm has considerably better chances of both becoming a star but also to survive (Ronald, venture capitalist).

8.5.5 Pro growth arguments

A number of factors, relating to the advantages of growth emerged from the data during the interviews, even if these questions were not specifically asked. In total five distinct factors were identified as pro-growth arguments: Profits, value, credibility, strategic advantages, and raising capital. These five factors are shown below in figure 6.

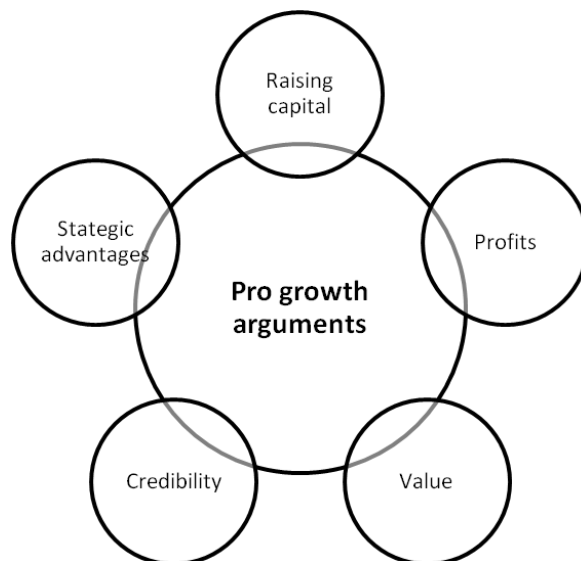


Figure 6: Pro growth arguments

Profits

The foremost argument for growth and high-growth are those of subsequent profits. These arguments are mostly based on the simple notion that if a firm sells more, also profits will increase. In total, 18 respondents answered the question as to whether growth will improve profitability in the long term. All 18 agreed that it was possible. Some felt very strong about the relationship: *"Yes, shortly said, it is a pre-requisite"* (Richard, public investor).

Some respondents argued that it is very industry-specific and may not work in all industries and some saw the potential in some cases: *"Mostly like it yes. Sometimes though, the value is based on something else; i.e. you think that your product has more value to someone else, and therefore you are not going to make profits before you sell the company"* (Steven, venture capitalist).

Finally, others argued for the potential for profit, when the business model as a whole functions, and the growth process, is thought through:

Yes. It is possible in the long-term (that growth leads to profits), but then it needs to be a smart strategic move. The greatest vice of Finnish companies is that they totally underestimate the challenges of growth, especially the challenges of international growth (David, public investor).

I would say that often I feel like that entrepreneurs are optimists, they are incurable optimists; they think that tomorrow will always make everything better so they invest and invest... the optimist sees that tomorrow or in a week or in a month of a few years from now, profitability will come (George, venture capitalist).

In addition, a surprisingly common tendency of referring to life-cycle theories was identified. On those occasions, opinions were based on the perceived content of the theory. Therefore, growth and especially high-growth were seen as a natural, almost inevitable state of development. It is not until a firm has gone through the growth state that it will start making serious profits. The dangers high-growth and the possibility of failure are acknowledged, and they even tend to be quite common, as recounted by David: *"we have seen so many growth-companies that have simply suffocated into their own inability and greed"* (David, public investor). David then continues with discussing the importance of profitable growth.

Arguments were also presented that the high-growth imperative, with a total disregard to profitability, may be an American way of doing things. It was suggested, however, that a new generation of businesses are starting to emerge. According to the entrepreneur John, the American way of doing business was characterized by *"an endless flow of capital wherever you looked"* (John, entrepreneur). This new generation of businesses is focusing on efficiency, self-sufficiency, and profits during the entire product development process:

This is a sort of profitability orientation already during the R&D phase. The day we get this drug out to the market, I will one day tell the press that this was

done with 20 million, instead of thousand millions, a billion (John, entrepreneur).

Value

The second pro-growth argument identified is that of increasing value. Value based arguments were often highly affected by the stakeholder view. A venture capitalist, in the case below, stated that value was something that stakeholders preferred regardless of its affect on profitability or sustainability of the business.

In venture capital profitability is not a thing for creating value. In our business the most important thing is that the value of the firm increases. In other words, the firm becomes more valuable due to the work they are doing within the company and many times the value has been created before they even have started selling, i.e. it is not profitable (Charles, public investor).

This type of perceived value-increase is based on the idea of a future IPO or acquisition. The other value increasing effect of high-growth, builds on the idea that increasing sales is evidence of market acceptance and market pull. Therefore, regardless of how it has been achieved, it gives evidence that the product that is being sold is accepted by the market. *“Eventually commercial success is measured in sales growth and therefore as market value; what others are willing to pay for the firm”* (Edward, venture capitalist).

Credibility

The third pro-growth argument is that of credibility. *“You have to get your things going as early as possible, to grow until a level that you are credible”* (Michael, entrepreneur). Credibility is something that can be seen from the view of the entrepreneur, or then from the views of stakeholders; internal and external credibility.

Internal credibility refers to the entrepreneurs own demand for credibility. For the entrepreneur the believed credibility brought by high-growth, can almost be a matter of self-prophecy and self-fulfillment. For these entrepreneurs high-growth needs to be achieved at any cost, and is therefore a self-evident objective.

External credibility refers to how the firm is viewed from the outside; the credibility in the eyes of various stakeholders. External credibility will partly make stakeholders interested in the firm, but also give bargaining power in negotiations. For example, venture capitalists were found to be more interested in firms that could show high-growth rates as these were perceived more credible.

Strategic advantages

The fourth pro-growth argument that emerged from the data is that of strategic advantages. These can for example be related to cost advantages derived from economies-of-scale, or to advantages derived through increased credibility. *“If*

economies-of-scale works, then you definitely should try to achieve that advantage. Economies-of-scale works nowadays in so many businesses globally, especially now when trade barriers, and similar, have been removed” (Steven, venture capitalist). It was usual for the arguments for strategic advantages to be based on achieving economies of scale.

In some situations, the drive towards growth was accepted in order to achieve a believed future advantage: *“If you think about profitability then you under-resource the entire growth potential that you have and you are not going to reach it. You have to invest in growth so that it would start, it doesn’t start only with luck” (John, entrepreneur).*

Raising capital

The fifth and final pro-growth argument is that of raising capital. Even if this argument is also closely related to many of the earlier points, it still deserves its own reference. It deserves its own reference because the countless arguments offered for growth and high-growth are for one thing only: raising capital.

A firm may find it necessary to grow into a state in which it has reached sufficient credibility to attain a first round of finance. As most investors are likely to only stay for a time period of three to five years, during that time the firm will need to convince the second round of investors and so on. Even if a considerable number of arguments are presented as critique against purely externally funded survival and growth, it remains the model in which the majority of growth-oriented firms operate. Therefore, a large majority of their strategies is affected not by their own preferences, but rather those of other stakeholders and the methods they perceive will increase the firm’s value.

8.5.6 Pro profitability arguments

In the chapter above, the major drivers towards a pro growth orientation were presented. A number of factors argue for the opposite behavior, a pro profitability orientation. In total, four distinct factors emerged from the data as reasons for being primarily profitability oriented: working business model, control, risk management, self-sustained growth (see figure 7 below).

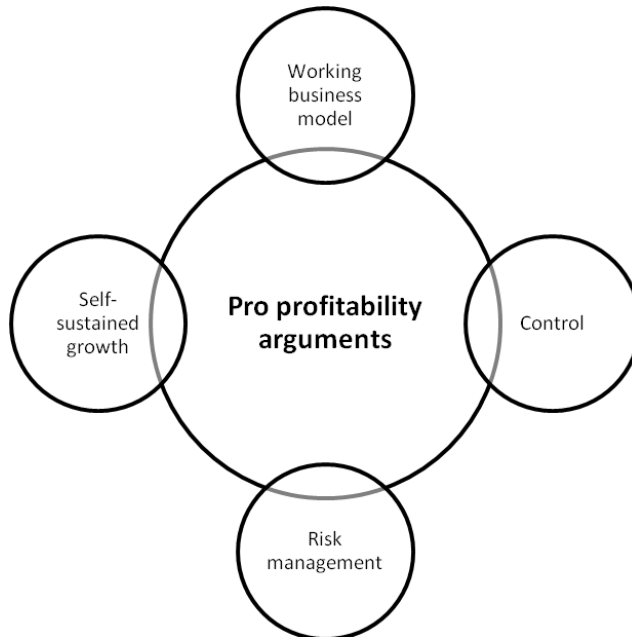


Figure 7: Pro profitability arguments

Working business model

The foremost reason supporting a pro-profitability orientation is that profitability is evidence of healthy working business behavior. Profits were seen as something that should be the fundamental driver of entrepreneurship. This view was shared by various stakeholder groups, and it was something that should follow through the entire life-span of the firm.

Well I think that you should as quickly as possible get into a profitable business model. You cannot think that you just build, and build, and build for the following nine years only to find out how it goes. The common rule of thumb should be to quickly become profitable (George, venture capitalist).

In the first place of course profitability. Growth it not an intrinsic value, profitability is! Profitability, of course (Joseph, public investor).

Profitability, because profitability is the outcome of firm value, or the monetary outcome of the firm. Growth is not that. If we go to the current market economy we could say that growth currently is, but where did it leave us? We were met by a wall, so growth cannot be the intrinsic value... (James, entrepreneur).

A number of respondents shared the view that the environment develops over time, and this also necessitates development within the firm. Sometimes short-term strategic decisions have to be made, even at the expense of profitability, in order to take full advantage of an emerging opportunity: *"Well I don't know. It depends on what*

the firm's long-term strategy is. Sometimes such sacrifices are worth taking, sometimes they are not" (Joseph, public investor).

However, in situations where short-term strategic decisions were made, the importance of a healthy business model was also emphasized. The entrepreneur needs to be certain that the business model is working as it is; only then may it be worth taking the risk of re-investing a larger amount of the profits than normal. In that case, the acceptance of lower profits is simply a temporarily justified strategic move, ensuring greater profitability in the future (Penrose, 1959). In the following example, George explains how it was worth re-investing a large amount of the profit in order for the firm to receive a good laboratory practices status (GLP):

You may have a good plan how to increase profitability, e.g. a GLP-status. Then you specifically aim at getting away from a bulk situation, where all your competitors are, in order to gain a competitive advantage for the future. And well, when you reach it, you realize it was worth the investment (George, venture capitalist).

Often growth and profitability were seen as two distinct concepts, which required specific reasoning for preferring one to the other. However, a number of respondents were unwilling to accept any kind of firm behavior that was unprofitable:

Both, I would not prioritize. If we say that you grow unprofitably, then you are either very short-sighted or then your idea is to sell the firm. But if we think in a long-term perspective, then you should always be thinking about it...in the medium-term if you grow unprofitably, then you have something seriously wrong and you should by no means prioritize it (Mark, venture capitalist).

Similar arguments were presented by James, an entrepreneur. James can be characterized as a person who has a fairly healthy way of looking at growth and profitability. For James, a healthy business model is all about profitability and therefore he would prefer it at any time:

Building profitability with the expense of growth that is an investment, right? This is also the sort of thing that, there are situations where you may not want to do it, but personally I am the sort of person that I would do it in any situation if the profitability levels are low (James, entrepreneur).

Even if profitability is seen as the ultimate measure of business success, the lack of it is something for which Finnish firms are criticized. The criticism is based both on a lack of ability, as well as on the existence of different forms of financing that distorts the actual financial state of the business.

Do we plan enough (referring to high-growth periods)? It depends on the situation. For Finnish firms you could say that no, because they become so blinded by growth so they forget...It depends on that we have plenty of these TEKES things, i.e. you count that you become profitable when you get the funding from TEKES. And TEKES is a special thing, which is not normal, it is

not normal life. The firm has to be profitable also without TEKES aids. (Steven, venture capitalist).

Overall, a large number of respondents were against the idea of public money distorting the market, and keeping firms afloat that did not have a profitable business model. Even if they saw it as a unique and potentially valuable aid, sometimes absolutely essential during the R&D phase, they still identified a number of unhealthy characteristics with the system. These characteristics were related to the differing valuation of the public investors and venture capitalists, and the perceived low performance demands.

Control

The second argument for a pro-profitability orientation is that of control. Control refers both to independence in decision making; having the control to decide the future direction of the firm and retaining control. Retaining control is the most effective way of minimizing the effect of stakeholder influence.

This notion is explained well by John, an entrepreneur, who talks about the necessity of efficient operations during the entire R&D phase as a way of retaining control and meeting the targets important for the entrepreneurs. Referring to massive R&D budgets in many of the larger pharmaceutical companies he states to following:

You can really question the thing that what is the money really spent on? Profitability can be a part of R&D as well. People have perhaps not just seen it as an important thing. For us, those that want to avoid the dilution of ownership, it is extremely important; the less we take external capital, the better the final result. Our thing will succeed (John, entrepreneur).

When making the decisions whether or not to retain control, the entrepreneur needs to understand the objectives of the investors buying a share in the company. The role and form of venture capital is well explained in the following extract by Steven, a venture capitalist:

Our idea is that with the capital investments we allow for fast growth without the profitability requirement. If you are profitable from the very beginning you necessarily do not need external capital, but in these fast things it's growth first and afterwards profitability. That is the whole idea (Steven, venture capitalist).

Risk management

The third argument for a pro profitability orientation is that of risk management. A number of stakeholders simply saw the position of low profitability as an extremely risky state. Regardless of whether the low profitability state was caused by internal matters or changes in the external environment, high profitability was seen as a tool for managing it. As a consequence, high profitability was seen as a more stable and sustainable position.

Those positions of low profitability, they are positions of death, and from there it will be difficult to move anywhere. Instead if you have good profitability, but a slow growth, then you can afford to think of the next moves (George, venture capitalist).

Well of course, I would prioritize profitability because it is, after all, on a more solid ground. If you grow with employment, and do not have profitability, it means that your money is quickly consumed. It can only be a temporary state (Christopher, policy maker).

Well what happens for a high-growth firm, is that it will run out of money. Either it will continue uphill until it ceases to exist or then, if you can find something positive in it, and if it really has potential, someone will acquire it (William, public investor).

I would say profitability, because we have seen a lot of absolutely lunatic growth where you just grow too fast and do not control it, so therefore I would prioritize profitability (Patricia, policy maker).

Therefore, high profitability is seen as a state allowing more strategic alternatives, less risky, and evidence of sound business operations.

Self-sustained growth

Finally, the fourth argument for a pro-profitability orientation is the potential for self-sustained growth. Self-sustained growth fundamentally captures all earlier arguments: a working business model, control, and risk management. First of all, the existence of profits is evidence of a working business model. Secondly, the existence of profits allows the firm to retain control of its strategic moves, as the demands brought in by external investors can be avoided. Finally, the profits help to manage the risk of unexpected changes in the environment and hence avoid bankruptcy. It could be argued that with this model of development firms grow slower. However, as shown in study IIA (see also Davidsson et al, 2009 and Steffens et al, 2009) high-profitability firms are much more likely than low profitability firms to reach a state where they grow faster, and are more profitable, than the rest of the industry.

Profitability, as a pre-requisite for future profitable growth, is captured in the following extracts by the public investors David as well as by William and Daniel, venture capitalists:

A profitable firm grows, by definition. When you have a profitable business it almost grows by force, either organically or by acquisition (David, public investor).

Growth comes through profitability (Daniel, venture capitalist).

You cannot build growth on an unprofitable business model... The old business model needs to sacrifice resources in order to secure profitability. Thereafter you can use the resources to build new growth... If you don't have profitability nor do you have the resources to attain growth (William, public investor).

Stakeholder influence

In both the pro growth figure (figure 6), and the pro profitability figure above (figure 7), a circular line passes through the arguments. That circular line represents a factor that affects all others: stakeholder influence. Stakeholder influence needs to be considered as a separate factor, because the majority of high-technology firms', when just starting out, are highly dependent on the stakeholders around them; policy makers, public investors, and venture capitalists. In addition, directly or indirectly, the stakeholder influence was mentioned in all 23 interviews. Even if the stakeholder approach is a completely different stream of research, it is mentioned here to show the complexity of the entrepreneurial environment (Cole, 1959; Gartner, 1985; Aldrich & Martinez, 2001; Davidsson, 2005; Carsrud & Brännback, 2007; Levie & Lichtenstein, 2010).

During different times of the firm's development, different stakeholders place demands on the firm (Frooman, 1999). Depending on the magnitude of control they have over the firm, for example, in the form of an equity share their existence is more critical.

As bad as it is, as long as we have this sort of market economy, the owners decide the direction to go to. And the owners' objective is unambiguously to look at the return on investment. They do not want happily to employ 20 more people, that's not their objective (Joseph, public investor).

Charles, also a public investor, argued that the current system might explain the large share of unprofitable businesses. However, nothing was seen as arguably negative with the situation:

Of those funded by venture capital, I would say that around 10% are in the position of being financially profitable, but that depends on the situation of state of the industry, and that is how it should be (Charles, public investor).

Policy makers may place demands concerning certain regulatory restrictions or principles. They are also principally interested in the well-being of society and lowering unemployment rates. Public investors on the other hand, are also interested in the well-being and the development of the economy. Their demands are therefore often related to increasing employment and survival of the firm.

Well here is a difference (referring to the importance of profits) in the philosophical question of us at TEKES and the basic purpose of business. The purpose of business is naturally to yield a return based on the invested capital... But here is a difference with what TEKES looks at, of course we also want profitable businesses, but for us in fact the more important indicators are the direct and indirect effects (referring to jobs and welfare) of that business in other industries (William, public investor).

Finally, venture capitalists are often shareholders in their own venture capital firms. Therefore, their demands are affected by either their personal preferences, or those of their firm's shareholders:

There are companies, whose owners, venture capitalists, want that all extra is trimmed away and just want to go full speed into one direction. If it doesn't work, you just put a cross on it. If it does, that is the case that will bring profits (Brian, venture capitalist).

These demands are naturally related to increasing wealth and therefore the VC is interested in making a profitable exit. For the venture capitalist, a profitable exit rarely requires the client firm to be profitable as what is preferred is high-growth:

Currently I belong to the board of directors in six companies. Two or three of these are in the biotechnology business and three are more IT-related. In all of them we emphasize that they have sales less than €10 million, and then that they specifically concentrate of achieving high-growth (Mark, venture capitalist).

8.6 Discussion of findings

As discussed in the beginning of this study, entrepreneurs operate as part of a larger eco-system (Carsrud & Brännback, 2007), or a social setting (Cole, 1959). This eco-system or social setting includes various stakeholders who all place different demands on the firm (Cole, 1959; Frooman, 1999; Carsrud & Brännback, 2007; Brännback & Carsrud, 2008; Leitch et al, 2010a). Depending on the amount of control the stakeholder has, the more the firm is affected.

Due to the suggested distortion of the growth and profitability relationship, this third and final study of the thesis, aimed to take more holistic view. A more holistic view was taken to develop a deeper understanding of the phenomenon (Gibb & Davies, 1990; Hofer & Bygrave, 1992; Carson & Coviello, 1996; Hindle, 2004; Leitch et al, 2010a). The purpose of the study was to explore the growth and profitability perceptions of the different stakeholders. The goal was to find justification for challenging the current growth and profitability nexus within entrepreneurship stakeholder perspectives, by answering the following research question:

Why is it justified to replace growth with profits among entrepreneurship stakeholder perspectives?

- a) How do the stakeholders conceptualize performance?
- b) How do the stakeholders understand the relationship between growth and profitability and what factors affect these perceptions?
- c) What are the arguments for a growth-oriented strategy and a profit-oriented strategy?

Instead of focusing on all potential actors, this study focused on those actors, which are believed to have the largest influence within the Finnish high-technology entrepreneurship eco-system; an approach of requisite holism (Rebernik & Mulej, 2000). The stakeholders included entrepreneurs, policy makers, public investors, and venture capitalists. They were all selected purposively to include key informants (Curran & Blackburn, 2001).

Four major factors emerged from the data, which at the same time helped to answer the purpose and goal of the study. These factors were: a reassurance that a growth myth exists, the multidimensionality of performance, the influence of stakeholders, and the heterogeneity of stakeholder groups.

Growth myth

First of all, confirmation that a growth myth exists was found to prevail among all stakeholder groups. A blind pursuit of growth due to the perceived success in profits was mentioned, either directly or indirectly, in several interviews. However, the informants mostly identified this among the other stakeholder groups, not among the one they represented. The existence of a high-growth myth became apparent in three scenarios: the perceived relationship between growth and profitability, the perceived theoretical link, and the perceived preferences of the other stakeholder groups. Arguments within these scenarios seemed to be more driven by assumptions than knowledge (Gibb, 2000; Levie & Lichtenstein, 2010).

Firstly, the arguments towards an unprofitable high-growth strategy were driven mainly by the expected profits that would follow, but also by the expectation of other strategic advantages. Many times the views were fairly contradictory. The informant could show clear preference towards profits, but still argued for an unprofitable high-growth strategy for achieving it, reinforcing the idea of a deeply rooted high-growth myth. Growth was often seen to take place at the expense of profitability, which was not found to be an issue of concern until later in the start-up process. The high risk of a growth-oriented strategy was acknowledged, but the expected advantages of profits justified those risks. The expected advantages included increasing value, credibility, strategic advantages, and the potential of raising more capital.

Secondly, the pursuit of high-growth was also linked to life-cycle thinking; arguments were given that while the theoretical model suggests an unprofitable high-growth with succeeding profits, such a strategy would be justifiable. Thirdly, the existence of assumptions about other stakeholder's groups was evident. Venture capitalists, public investors, and policy makers all seemed to agree that entrepreneurs are the ones being over-optimistic and creating hockey-stick growth plans. Similarly, it was seen that it is the venture capitalists who demand high-growth regardless of profitability, while it was seen that the policy makers and public investors preferred high employment growth. The stakeholders themselves usually did not share the views associated with them by others. The stakeholders did seem to be aware of a growth and profitability distortion, but did not see themselves,

or the stakeholder group they belonged to, as those who were imposing this situation.

Several key informants acknowledged the fact that there is currently a pro-growth bias. They did however see it as an unhealthy position. A profitable firm was seen as one, which is built on healthy foundations, where the owner has the power of retaining strategic control and independence. This allows the firm to focus on self-sustained profitable growth. Profitability was seen as something self-evident for the firm, and therefore something that should always be preferred. It was commonly acknowledged that the norm is that profitability is not an issue in the early stages of development, but instead the focus is heavily on growth. However, one entrepreneur saw this as an opportunity and attempted to turn this norm into a competitive advantage; his company had been highly profit-oriented during its entire R&D phase and could now show notable efficiency in comparison to the rest of the industry. This, while also being evidence of identifying an opportunity others have failed to identify (Kirzner, 1973), is also an example of a truly innovative business model, that changes how business is being conducted in that industry (Schumpeter, 1934, 1954).

Multidimensionality of performance

Second is the difficulty of assessing performance among Finnish high-technology firms. The multidimensionality of performance was well understood when discussing the matter with the key informants. The large majority assessed growth in terms of sales and profitability in terms of EBIT. No one saw growth as an unambiguous measure of success; a clear contradiction of a large majority of entrepreneurship research (see study I).

A state of unprofitable growth was evidence of business success only if it was achieved through a strategic move leading to a state of higher profitability. A state of low profitability should only be accepted as a temporary state. For the purpose of creating sustainable, profitably growing firms, entrepreneurs should be in a state of continuous profitability improvement.

In determining success, a case-by-case assessment was always emphasized. The key informants never considered any single performance indicator superior. Neither did they consider one specific indicator suitable for all contexts during all the different time periods. Instead, different performance indicators were found relevant during different stages of firm development. If the firm was in the earlier stages of the development process, then the more qualitative the performance indicators were preferred to be. During early stages, managing cash flow and meeting set milestones, was preferred. Later in the development, accounting-based measures could be used for assessing firm performance.

However, regardless of the stage of development, the firm's performance cannot be assessed in isolation. The performance of a firm is rather a reflection of the preferences, motives, and know-how of the individual or individuals making the

strategic decisions (Penrose, 1952; Achtenagen et al, 2010; Carsrud & Brännback, 2011). These decisions can be made by the entrepreneur, or team of entrepreneurs, or they can be made by another stakeholder providing a valuable resource (Frooman, 1999). Assessing performance, without knowing what the performance is a reflection of, shows incomplete understanding of the firm and may lead to drawing faulty conclusions. In other words, only assessing *what* the performance of the firm is, or *how* it has been achieved, will not explain very much. Without understanding the *why* (Whetten, 1989), the rationalization behind the performance outcome, the ability to construct valuable knowledge will be limited (Girod-Séville, 2001).

Stakeholder influence

Third, is the issue briefly discussed previously of stakeholder influence, and the effect it may have on the firm. Retaining high profitability levels allows the firm to achieve self-sustained growth, allowing the entrepreneur to retain complete control of the firms operations. However, at certain times profitability levels may be too low or internally generated funds simply insufficient (Churchill & Mullins, 2001). In such situations, the entrepreneur may find it justified and necessary to use external capital to fund future growth.

When new stakeholders emerge a conflict of interest occurs as the business logics of the various stakeholders may differ; they all view the firm from a certain perspective (Douglas, 2009). Regardless of the type of stakeholder, they will prefer certain things to others. For example, some venture capitalists find unprofitable high-growth a means of increasing the credibility and value of their investment. This is pursued in the expectation of a profitable future exit. Similarly, policy makers and public investors have a foremost interest in job creation and want to see people being employed: a process, which, if badly undertaken, may simply contribute to increasing inefficiency and subsequently deteriorating profitability levels.

All stakeholder groups in this study, argued that firms' plan primarily for growth and high-growth, instead of profitability. Therefore, one can justifiably ask for whom these plans are made. It can be assumed that these plans are made for those with an ownership share in the firm; those stakeholders with control (Frooman, 1999). The reason why these plans are made is presumably because that the high-growth mantra is all-pervading; the pro-growth arguments are simply so much stronger than the pro-profitability arguments. In other words, profitability is simply seen as an issue shaded by the importance of growth. One of the venture capitalist even mentioned that, being totally aware of the existence of over-optimistic growth plans, they would not even consider investing in a firm, which did not exhibit these. The rationale behind it was that the entrepreneurs that do show this at least have high-aspirations, and are therefore more interesting. Despite the risks of high-growth, entrepreneurs plan and try to achieve high-growth partly because that is what they perceive that other stakeholders want to see. Whether this is the strategy to adopt, to increase the likelihood of further profitable growth, was answered in the second study of this thesis.

Stakeholder heterogeneity

Finally, there is the matter of stakeholder heterogeneity. This study initially categorized the key informants into four groups depending on their current full-time position. However, it soon became obvious that it was unjustifiable to categorize the key informants in such a way. Partly because it was impossible to distinguish whether the views given represented personal views, or whether they were the views of the organization they represented. For example, even if policy makers from an organizational view preferred creating employment, at the same time they could be aware of the danger of increasing costs and the potentially caused inefficiency. Similarly, some venture capitalist saw new employment as evidence of meeting set targets and evidence of a successful firm, while others saw it as the worst possible outcome of a successful firm. In addition, also the heterogeneity within the groups made a strict categorization and comparison between groups unjustifiable and even faulty. For example, not all venture capitalists follow the same business logic, and similarly, not all entrepreneurs have similar preferences of where they want to take their firm.

Based on the above presented arguments it was found justified to replace the currently prevailing growth-bias with that of profitability from the stakeholder's perspective. Many stakeholder groups, despite their potentially strong influence on the firm, are very little concerned with profitability. Instead, the focus is heavily on growth.

The existence of a high-growth bias is commonly shared. In order to be able to build sound, profitably growing firms (Penrose, 1959; Kim & Mauborgne, 2000; Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009), stakeholder influence should be minimized. Only then can the entrepreneur focus on building a sound business, where profitability levels reach such a level that they could cover the cost of all the other objectives of the firm (Drucker, 2007). Unprofitable businesses, and the danger of a subsequent bankruptcy, have been found costly for the economy (Venkataraman & Ramanujam, 1986; Drucker, 2007). Therefore, profitability should be the foremost concern of all stakeholder groups. Based on the findings presented in this study, the current norm, however, seems to be very far from this state of affairs and therefore needs to be challenged.

9 CONCLUSION AND IMPLICATIONS

And because we like hearing myths, we tell them and retell them, and write them down in articles and books. When people write books and articles recounting these myths, other people buy them, leading to a self-perpetuating cycle of more authors writing down similar myths. The result of all this telling and retelling is that myths about entrepreneurship pervade all kinds of media, from television to radio to newspapers and the World Wide Web. *Millions of Web pages, tens of thousands of books, and hundreds of thousands of articles about entrepreneurship tell the stories of the meteoric growth of start-up companies* [italics added] (Shane, 2008, 1).

The excerpt cited above is from Shane (2008), a book focusing specifically on myths in entrepreneurship; *The illusions of entrepreneurship: the costly myths that entrepreneurs, investors and policy makers live by*. Myths are something most would argue, not to belong in a doctoral thesis with a focus on entrepreneurship. Myths are usually only found in fairytales and other contexts not relevant to real life. However, myths within business and entrepreneurship are real (Drucker, 1982; Birch, 1987; Gibb, 2000; Shane, 2008; Levie et al, 2011). *Myths are real and they are found to affect how people think and behave*, regardless of whether one is talking about the entrepreneur, the policy makers, other stakeholders, or the general public (Shane, 2008).

Myths are created and spread due to increasing ignorance and a tendency of replacing a lack of knowledge with purely mythical concepts; a process that can transform an exception into a norm (Campbell, 1949; Gibb, 2000). Twenty years before Shane (2008), Maidique (1986) had already presented arguments on how an exception can become the norm. In a discussion about the tenfold increase in VC and IPO financing, to a large extent into high-technology start-ups, he stated the following:

As usually is the case, a handful of firms prospered beyond any reasonable expectation and became the focus of media attention and their founders' fold heroes as sales and earnings grew exponentially, while hundreds of others failed against a climate of irrational enthusiasm (Maidique, 1987, 170).

The quote above illustrates something called a contagion-effect (Taleb, 2004). It shows how an unlikely event, often even completely unpredictable and unexpected, transforms into something likely and foreseeable through endowing it with a disproportionate focus. Taleb (2004) argues that contagion-effects are not only evident in all the different streams of science, but also in everyday life.

Some events that occur in the environment are complete outliers. They are completely unpredictable beforehand, but despite this fact they create an extreme impact afterwards. In retrospect, the human mind concocts an explanation about the event, making the outlier somehow predictable or even commonplace. Taleb (2007) calls such events *black swans*. He argues, among others, that the majority of major discoveries and innovations that have taken place were completely unexpected

beforehand: “contrary to social-science wisdom, almost no discovery, no technologies of note, came from design and planning – they were just Black Swans” (Taleb 2007, prologue).

The notion of a black swan can be seen in two ways. On the one hand, a black swan can be seen as the occurrence of the unexpected. On the other hand, it can be seen as the non-occurrence of the expected (Taleb, 2007). Expectations spread through the above-mentioned contagion-effect.

*This thesis suggests that high-growth leading to high-success has experienced a contagion-effect, and fundamentally is nothing but a black-swan*¹³. Through disproportionate focus on a wide scale within the entrepreneurship domain, growth and especially high-growth has achieved a myth-like status. Growth is encouraged, firms are in pursuit of it, and it is clearly and unquestionably accepted as evidence of business success. Growth has become the norm, business-as-usual. Profit on the other hand, has become the expected outcome of growth. Subsequently, the growth and profitability nexus has become distorted; a pernicious development for the firm, and one which this thesis has attempted to challenge and change.

The aim of this thesis was to bring profitability back into entrepreneurship; to entrepreneurship research, to entrepreneurship practice, and to the entrepreneurship stakeholder’s perspective. The decision to focus on three contexts was in order to gain a more holistic approach. Such an approach facilitates a deeper view of the entire social system that places demands on the firm (Cole, 1959; Gartner, 1985; Frooman, 1999; Aldrich & Martinez, 2001; Davidsson, 2005; Carsrud & Brännback, 2007; Levie & Lichtenstein, 2010). This approach was also found both justified and necessary due to the breadth of the growth and profitability distortion. Growth and high-growth has achieved major attention not only in entrepreneurship research (Penrose, 1959; Birch, 1987; Weinzimmer et al, 1998; Capon et al, 1990; Delmar, et al, 2003; Davidsson & Delmar, 2006; Davidsson et al, 2007; Davidsson et al, 2009; Shepherd & Wiklund, 2009; McKelvie & Wiklund, 2010), but also in other stakeholder groups (Gibb, 2000; Christensen & Raynor, 2003; Autio, 2007; EU: Lisbon 2000; EU: 2020; EU: SBA 2008; FMEE Growth Entrepreneurship; Murray et al, 2009). In addition, entrepreneurs themselves seem to be primarily concerned with it (Tilles, 1963; Gartner, 1997; Kiviluoto et al, 2010; see chapter 8.5.3). Thus, the distortion of the growth and profitability nexus is wide-spread. Therefore, in order to challenge this distortion it was found necessary to adopt a more holistic research approach.

Research within the entrepreneurship domain has largely been dominated by the positivist view. Thus, quantitative methodologies have been more common (Carson & Coviello, 1996; Cope, 2005; Davidsson, 2005). The epistemological foundations, the

¹³ It is acknowledged that in some occurrences high-growth may translate into high success, and is hence per definition not a black swan. However, two things are suggested: (I) these occurrences are rare, and for the purpose of creating an accumulated flow of knowledge (Kuhn, 1970), they are unexplainable and non-replicable, (II) through a contagion-effect this event has distorted the growth and profitability nexus and created a dominating pro-growth instead of a pro-profitability view. This view is apparent in entrepreneurship research, among policy makers, and among other stakeholder groups.

researchers view on knowledge, are often found to affect the development of a research approach (Bryman, 2007). However, there is nothing that hinders the integration of views, or conducting research of one paradigm despite being influenced by the logic of another (Grenier & Josserand, 2001). In practice, research within the social science is more adaptive, and the lines between epistemologies often become blurred (Miles & Huberman, 1994).

Growth entrepreneurship research is continuously criticized for having a fragmented theory base and it has been argued that theoretical development has been slow. Despite increasing interest, considerably little is known about the growth phenomenon (Weinzimmer et al, 1990; Delmar et al, 2003; Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009; Achtenagen et al, 2010; Leitch et al, 2010a; McKelvie & Wiklund, 2010). In addition, research results on the growth and profitability relationship are inconclusive (Capon et al, 1990; Markman & Gartner, 2002; Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009). Calls for research using novel approaches and combinations of approaches have been made (Carson & Coviello, 1996; Gartner & Birley, 2002; Cope, 2005; Leitch et al, 2010a).

Methodologically, this thesis aimed at exploring and uncovering facts about growth and profitability. Therefore, it relied strongly on a positivistic view on knowledge (Smircich, 1983; Girod-Séville & Perret, 2001; Allard-Poesi & Maréchal, 2001). Through a positivistic view, a clear-cut replacement of growth with profits has been argued. More specifically, the thesis has challenged the current growth and profitability nexus, by justifying the replacement of growth with profits. The idea of challenging, thus providing a justified alternative for current praxis as, a form of knowledge creation process, was derived from Popper's (1959) idea of falsification.

Contextually, the thesis focused on privately-held Finnish high-technology (biotechnology and IT) start-ups. The decision to focus on privately-held start-ups was because of an identified research gap (see study I). In addition, high-technology firms are found to enjoy disproportionate interest among public policy and the general public (Berry, 1998; Almus & Nerlinger, 1999; Brännback & Carsrud, 2008). Therefore, specifically the high-technology context was found suitable for the purpose of the thesis.

Sometimes an idea or an issue is a challenge made with the specific purpose of creating change. However, the change demanded by this thesis is much needed; a clear-cut change from growth to profit within the three entrepreneurship contexts studied. The answers to the research questions, and the justifications for this change, have been individually discussed at the end of each study. Therefore, this last chapter will focus on discussing the change this thesis aims to effect.

9.1 Implications for entrepreneurship research

Recent research presents a paradox in the current state of growth in entrepreneurship research. On the one hand, an increasingly strong interest in the field can be evidenced over the past two decades. On the other hand, the field has been criticized for being fragmented with research results that are inconclusive and arguments that show surprisingly little is known about the growth phenomenon (Achtenagen et al, 2010; Leitch et al, 2010a; McKelvie & Wiklund, 2010). Therefore, a change is highly necessary, and this thesis offers some suggestions.

“Entrepreneurship scholarship is what entrepreneurship scholars pay attention to” (Gartner et al 2006, 327). Based on the first study of this thesis it can be argued that entrepreneurship scholars pay attention to something that is not entrepreneurship. *Entrepreneurship is the purposeful activity (including an integrative sequence of decisions) of an individual or group of associated individuals, undertaken to initiate, maintain and grow a profit-oriented firm* (adapted from Cole, 1959). This definition captures three fundamental aspects of entrepreneurship. (I) Entrepreneurship is about start-ups, (II) entrepreneurship is about sustainability (III) entrepreneurship is about profitable growth. Based on the results of study I (chapter six), entrepreneurship scholarship is currently not paying attention to these.

First of all, no article reviewed in study was concerned with the growth and profitability relationship between privately-held high-technology start-ups. Only four studies out of 118 were concerned in some degree with the growth and profitability of privately-held firms. Of these, only two were specifically focused on the relationship. However, one of these focused on a very specific phenomenon, extraordinary growth (Markman & Gartner, 2002) while the other did not include micro firms in the study sample (Davidsson et al, 2009).

The large majority of firms in most economies worldwide consists of privately-held micro firms; firms with less than 10 employees. Therefore, one would assume that entrepreneurship research would also focus specifically on these. It is unlikely, that any of the four articles concerned with growth and profitability among privately-held firms, was actually concerned with micro firms and actual start-ups. This identified research gap shows a strong need for studies focusing on the profitability of micro firms not only among high-technology firms, but also across sectors.

The reason for the lack of research on privately-held start-ups cannot fully be answered by study I. However, some evidence can be found showing research is being driven by data availability, instead of data suitability. A tendency for such research practice has been identified previously and it has been found to affect negatively the quality of research (Hayek, 1974; VanderWerf & Mahon, 1997; Shepherd & Wiklund 2009). Difficulty assessing performance among privately-held high-technology firms has been pointed out before (Birley & Westhead, 1990; Bloodgood, 1996; Bantel, 1998; Robinson, 1998; Zahra, 2002; Gilbert et al, 2006; Kiviluoto et al, 2011). The difficulty is not only caused by lack of data availability, but

also due to the nature of the firms and the business logic with which they may be operating. Finding the best measure of performance can be an impossibility considering the variation in firms. Finding one specific measure is necessarily not even justified (Penrose, 1959; Richard et al, 2009). However, this thesis suggests that some measures of performance are notably better than other measures. Therefore, it is argued that the scholarly community is focusing too much attention on the wrong kinds of performance.

Together with study I, a number of studies have found relative sales growth to be the prominent measure of firm performance (Weinzimmer et al, 1998; Delmar, 2006; Gartner et al, 2006; Shepherd & Wiklund, 2009; Achtenagen et al, 2010). This is something that is true in not only entrepreneurship research, but also in general business and public media (see chapter 8.2). However, as study I showed, relative sales growth was not comparable to any of the other 14 performance measures studied. This was true regardless of industry, and regardless of firm age. If the dominant performance measure does not translate to any other measure of performance, one can justifiably ask: *how much do we really know about the performance of start-ups?*

If the findings of a study explain a certain percentage of the performance differences in relative sales growth, what explains the differences in the other 14 measures? More importantly, what explains the differences in profitability, or the lack of it? Currently, a large majority of research does manage to explain changes only in relative sales growth. Whether or not it would explain changes in another performance measure cannot be answered, as other measures are rarely included. Weinzimmer et al (1998) is a widely cited study in entrepreneurship research with regard to studies assessing performance differences. This particular study does show high concurrent validity between relative sales growth and three other measures: absolute sales, absolute employment growth, and absolute asset growth. However, their research is focused solely on publicly-traded firms. Therefore, it may well be yet another example of research from a completely distinct context being blindly adopted into the entrepreneurship domain.

The low comparability of different performance indicators, and the high annual variability shown in study II, emphasizes a matter of crucial importance. This matter must not be understated.

First of all, the high annual variability suggests that results of a study would not concur if the study was replicated using a different measurement of time. Study II already showed a large variability when one-year measurement intervals were applied. Secondly, the matter of low comparability between measures may be a major contributor to the lack of accumulated knowledge creation in the domain of growth entrepreneurship research. Performance in general is extremely heterogeneous. Research has identified more performance conceptualizations than there are studies (Murphy et al, 1996; Richard et al, 2009). Study II showed very varying degrees of comparability between measures, during the time period, and

within the industries studied. Going into specifics of which indicators showed some degree of comparison, is not relevant at this point. What is relevant is the acknowledgment of the existence of such high variation and the low comparability between measures. Considering this, together with the number of possible performance conceptualizations, sheds some light on the source of the problem. Together these two points mean that *fundamentally very few studies on any type of performance are comparable with each other*. This thesis focus only on discussing two types of performance, profit and growth, but the problems extend much further than that.

This thesis attempts to assert that growth and profits are by no means the same, and by no means give an equivalent reflection of a firm's performance. The most commonly used measure of performance, relative sales growth, does not translate into any measure of profitability. The only real measure of a successful firm's operations is profits. Profit is what used to be the driver, and an outcome of entrepreneurship (Schumpeter, 1934; Penrose, 1959; Kirzner 1973). This is what profits should still be today.

McKelvie and Wiklund (2010) presented three independent streams of growth entrepreneurship research: growth as an outcome, the outcome of growth, and growth as a process. Instead of focusing on growth, entrepreneurship research should focus foremost on profits: profits as an outcome, the outcome of profits, profit generation as a process. Due to the complex nature of performance per se, it is important that profits should not be regarded in isolation either. Therefore, a number of measures should be used in all studies conducted. Research has suggested a minimum of three measures to capture the different performance dimensions (Devinney et al, 2009; Richard et al, 2009). Due to the high variability over time, performance should be measured over a longer time period, allowing the testing of the validity of the model over time; single occurrences have no significance in science (Popper, 1959).

Leitch and Harrison (2010b) suggested that entrepreneurship research would advance once scholars start asking the right questions. It is suggested here that all research should aim to answer Whetten's (1989) three questions of theory development: what, how, and why. All decisions concerning performance measures should not be made until these questions have been answered.

It should be acknowledged that the performance of a firm, regardless of whether it is measured by growth or profitability, is a reflection of the individual-level decisions made in that firm. Penrose (1952) acknowledged this, as did Achtenagen et al (2010) more than half a century later. The currently dominant firm-level research can only answer a limited number of questions about performance. The individual entrepreneur is the one who has taken the decisions, which are finally reflected in the firm's performance. The individual entrepreneur can be affected by the environment in which the firm operates and therefore an understanding of the individual, and hence the firm, requires an understanding of the entire environment.

Richard et al (2009, 23) presents five methodological issues to be considered in all research concerning performance. Considering these issues would presumably lead to better quality research being conducted:

1. Measuring performance requires weighing the relevance of performance for the focal stakeholders.
2. Measurement of performance must take into account the heterogeneity of environments, strategies, and management practices.
3. Measurement of performance requires an understanding of the time series properties relating organizational activity to performance.
4. Performance measures should not be made specific to the research question but be sufficiently robust to cover the domain of organizational performance.
5. Measurement of performance requires an understanding of the relationship between measures.

Entrepreneurship is a practice-based discipline. It may therefore require the researcher to view the phenomenon from different epistemological perspectives (Grenier & Josserand, 2001; Bryman, 2007; Leitch et al, 2010b), instead of being bound to the rationalities of a certain epistemological view. This thesis is an example of such an attempt. It has relied heavily on a positivistic view, trying to challenge the current norm and justify a clear-cut replacement of growth with profits (Popper, 1959). It did so through the use of methodologies relying on a different epistemological foundation. Study I was of a more deterministic and positivistic nature, study II was both deterministic and interpretative, while study III was purely interpretative.

In comparison to the current focus of entrepreneurship research, the arguments presented here may seem somewhat provocative. In order to change the unsound development of growth entrepreneurship research, research that completely lacks growth and profitability of start-ups, changes need to take place. Research cannot and must not be driven by data availability or ease-of-access to data. This entails the danger of research being conducted on skewed samples, and the use of inappropriate performance measures, which fail to give a valid representation of the population it attempts to explain, the typical start-up. Entrepreneurship scholarship should therefore attempt to pay more attention to what is actually being studied, how it is being studied, and why (Whetten, 1989). In contrast to current research practice, a focus on the profitability, and profitability building activities of privately-held start-ups, should be the primary focus of entrepreneurship research.

9.2 Implications for entrepreneurs

The second study of this thesis attempted to challenge the growth and profitability nexus in entrepreneurship practice. This was done in two separate studies. In the first study, the firms' movements within a growth and profitability matrix were

explored. In the second study, an explorative investigation of the performance of Finnish high-technology firms was conducted.

The supporting evidence for the importance of replacing growth with profits in entrepreneurship practice can be found using Markov-chain analysis. Using a sample of 1,039 high-technology start-up firms the results in this study concur with earlier studies (Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009). It is found that unprofitable growth is evidence of an unsound development of a firm. This statement holds true regardless of a firm's age. Among the three age groups studied, the likelihood of achieving profitable high-growth is notably higher when starting from a position of high relative profitability. On average, a high-profitability, low-growth firm is twice as likely ($=0.384$ vs. 0.1896) to make the transition into a position of high-profitability and high-growth, in comparison to a high-growth low-profitability firm. On the contrary, a high-growth low-profitability firm is on average twice as likely ($=0.381$ vs. 0.193) to make the transition to a position of low-growth and low-profitability, in comparison to a high-profitability low-growth firm.

Regardless of age, firms are most likely to stay in the same position from which they started. These results speak strongly for a profitability-oriented start-up strategy and justify the replacement of growth with profits in entrepreneurship practice. Regardless of age, firms starting from a high-profitability state will remain in that position with more than 70% likelihood. In contrast, a firm starting from a state of low-profitability will remain with more than 70% likelihood in that position also in the future.

However, such a Markov-chain analysis as conducted in study IIA, only conveys one part of the story. In the analysis, firms are compared only to other firms in the sample, hence giving an indication of the firms' relative performance against each other. Therefore, an additional explorative analysis was conducted, giving further justification for the replacement of growth with profits in entrepreneurship practice.

Using only median performance indicators the following can be identified. Both bio and IT firms do manage to grow, on average, by 15.5% annually. However, when focusing on profitability, the figures are less compelling. Bio firms reach, on average, an operating result of 20.3 thousand euros, and IT firms an operating result of 12.5 thousand euros. The average annual net result is 20 thousand euros for bio firms and 9 thousand for IT firms. It is acknowledged that accounting practice, new investments, and taxation planning affect the reported profitability (Hopeasaari, 2011; Leppiniemi & Leppiniemi, 2011). It follows that one could assume that older firms would benefit from such practices, and would hence show higher profitability. It could be argued that accountants attempt to reduce the taxable income, hence affecting the results of the financial year. However, such practices should not affect the operating result. Therefore, one could assume a higher operating result for older firms. However, no significant differences exist between the three age groups studied.

The profitability levels identified in the studied sample can hardly cover the cost of staying in business (Drucker, 2007). They are neither evidence of profit-oriented growth (Cole, 1959; Penrose, 1959) nor sound firm development (Davidsson et al, 2009; Steffens et al, 2009). One special concern needs to be emphasized; the low operating result and the low EBIT. It is essential for a firm to focus on the right factors from the beginning, as it may be extremely difficult to improve profitability later (Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, see chapter 7.2). Drucker (1982) suggest that even a 20% improvement in profit margins may be impossible in a competitive market (see also, Churchill & Mullins, 2001). Profits and profitability are the principal illustrations of the validity of a business model (Drucker, 2007). Hence, a firm achieving sufficiently high profitability when all costs and risks are taken into consideration, has a valid business model. In contrast, one that fails to do so does not have a working business model. The low profitability levels identified in study IIB indicate an ineffective business models within the high-technology industries. The question therefore is how has this growth been achieved and what are the minimum levels of profit needed for even staying in business. Drucker (1982, 2007) specifically discusses these issues thoroughly.

Rather than being concerned with the maximum level of profits, management should be concerned with understanding what the necessary *minimum levels of profits are* (Drucker, 1982). Most firms fail to do this, which is hazardous for the firm but also impoverishes the economy. Minimum levels of profits should cover the costs of future risk. Costs are a very central concern in Drucker's work:

Finally, businessmen owe it to themselves and owe it to society to hammer home that there is no such thing as profit. There are only costs: costs of doing business and costs of staying in business; costs of labour and raw materials, and costs of capital; costs of today's jobs and costs of tomorrow's jobs and tomorrow's pensions (Drucker, 1982, 54).

What Drucker (1982) means, is that a focus on costs is a more process oriented-view. Instead of focusing on the final outcome, profit, the more important focus is on how that outcome is achieved. Drucker (1982) suggests therefore the importance of understanding a firm's operations as a collection of costs.

Drucker (2007) argues that for something as essential as profitability, there are no real tools for determining the amount of profitability necessary to allow future operations of a business. In determining this, there are three concepts proposed that need to be understood: (I) the purpose of a business, (II) the functions of a business, and (III) the objectives of a business (Drucker, 2007).

The purpose of all businesses is to create a customer (Drucker, 2007). Without customers, a business fails to meet its fundamental purpose. In order to be able to meet this purpose, all businesses have only two functions: innovation and marketing. Even if the two can be seen as fairly separate functions, the fact is that without marketing, there would be no innovations, and without innovations, there would be

no marketing. Innovations allow businesses to grow; *not to grow bigger, but to grow better.*

Profits represent the objectives of the business; profits are needed to cover the costs of the businesses objectives. The eight objectives all firms should have are: marketing, innovation, human resources, financial resources, physical resources, productivity, social responsibility, and profits (Drucker, 2007). Profit planning is essential, but it cannot take place until the first seven objectives have been considered. All seven contain risk, some more than others, but nevertheless risks that do need to be considered and accounted for. Profits are what should account for the cost and risk of all other objectives: *"Profits are the costs of future, the cost of staying in business"* (Drucker, 2007, 38).

Only one type of growth is preferable, and that is through increased productivity. Drucker (2007) suggest *that innovation allows a firm to grow better instead of growing bigger*, and therefore it can be said that businesses should strive for innovation-driven growth. Therefore, instead of a growing for the sake of growth, all firms should be on a continuous quest of growing better.

Equally important will be the ability of management to distinguish between desirable and undesirable growth. Strength and muscle are growth. Growth is strength if it results in overall productivity of the wealth-producing resources of capital, key physical resources, and human resources. Growth that does not make resources more productive is fat and as much a burden on the corporate body as it is on the human body. And growth that is being purchased at the expense of the productivity of the factors of production, as much of the growth of the go-go years, is a malignant tumor and calls for radical surgery. (Drucker, 1982, 59)

Growth can be achieved in various ways. Drucker (1982) argues that all firms need ways to distinguish the different types of growth, something he calls healthy growth, fat, and cancer (see Drucker (1982, 90) for a description of the three). While all three can be labeled as growth, all are neither desirable nor advantageous for the firm. James, one of the entrepreneurs interviewed in study II, shared these views: *"you need to see how you are growing... you can buy yourself growth, but that is unhealthy (James, entrepreneur)"*. Drucker (1982) pointed out that the different types of growth also need to be distinguished by policy makers; *what kind of growth is desirable and profitable for the economy and what types are not*. Fostering the wrong kind of growth may have a deteriorating effect on the economy.

The results presented in study II, together with Drucker's views on the importance of pursuing the right kind of growth, captures the implications for entrepreneurs that this thesis attempts to convey. Firms should be in a continuous search for innovation driven growth, when innovation is understood as Drucker (2007) meant; efficiency and profitability increasing. This requires an entrepreneurial mindset solely and constantly focused towards increasing profitability (Penrose, 1959). Such an approach makes the firm validate its business model as soon as possible. In addition,

it helps to minimize the need and consequences of external finance (Churchill & Mullins, 2001, see chapter 8.5.6).

An innovation driven profit-orientation does not only create a sound perspective of business-as-usual, but it may also contribute to the creation of a competitive advantage. An example of this was captured by John, another entrepreneur interviewed in study III. In order to minimize the need for external finance, his business had been focusing on efficiency, self-sufficiency, and profits from day one. This is an example of the type of profit-orientation that can have a radical, game-changing effect on how business is being conducted within the industry:

This is a sort of profitability orientation already during the R&D phase. The day we get this drug out to the market, I will one day tell the press that this was done with 20 million, instead of a thousand million, a billion (John, entrepreneur).

9.3 Implications for policy makers

The high-growth myth prevails throughout Finnish, European, and global entrepreneurship policy (Gibb, 2000; Autio, 2007; Murray et al, 2009; EU: Lisbon 2000; EU: 2020; FMEE, 2010; Haltiwanger et al, 2010). Policies are set to encourage growth entrepreneurship, often through encouraging firms to employ more people. These policies are driven by the perceived economic contribution of small, high-growth firms (Biosca, 2010; Haltiwanger et al, 2010; Neumark et al, 2010). Policy makers are principally interested in a specific type of growth, employment growth. Employment growth is not the focus of this thesis, and therefore the implications for policy makers are discussed only briefly.

Research has suggested that access to finance can be the major constraint for the development of high-technology firms (Shepherd & Wiklund, 2005; Murray et al, 2009; Renko et al, 2009; Schneider & Veugelers, 2010). In Finland, there are a number of public institutions providing start-up capital, TEKES being the largest (TEKES, 2011). The interviews in study III provided mixed opinions about the existence of such a system. While some found such institutions crucial, as they provide capital for research projects otherwise too expensive for firms, others found such a system to create inefficiency, distort competition, and to keep otherwise failing firms afloat. In addition, the gap between public and private finance was seen as too large. This gap, caused by different forms of valuation and different demands placed on firms, was found to cause severe problems once a firm acquired the first round of private capital.

Policies encouraging firms to employ more staff distort them from normal firm behavior. They encourage the entrepreneur to focus on the wrong kind of growth (Drucker, 1982, 2007). Any type of policy that hinders rather than enables a firm's development should be re-developed. Only a certain type of growth is profitable and

advantageous for an economy, and hence should be encouraged (Venkataraman & Ramanujam, 1986; Drucker, 2007). Therefore, entrepreneurs should first and foremost be encouraged to develop firm's working on sound business models. A sound business model means one that generates profit, and thereby provides the firm the basis for self-sufficient profitable growth. Encouraging firms to employ only for the sake of decreasing unemployment can be disastrous for the firm, and in the long term also for the economy. Such employment growth that helps the firm become more productive or to grasp profitable opportunities, should be encouraged instead.

Regardless of whether the focus is on public finance or more general growth entrepreneurship policies, they should focus on one thing. They should focus on providing an eco-system where entrepreneurs can and want to generate profits. This requires an eco-system that encourages increasing profits, not penalizes them through rigid taxation policies. Profit generating firms are evidence of firms working on sound business models, and will therefore be much more valuable to society both in the short-term and long-term.

9.4 Limitations and suggestions for further research

This thesis argues strongly against current prevailing practice on a broad array of issues within the entrepreneurship domain. Following the positivistic knowledge view, a replacement of growth by profits is advocated and the replacement is attempted to be justified. This justification is done through exploring the phenomenon from three selected angles. Such an approach achieves a more holistic perspective, as called for by earlier studies (Carson & Coviello, 1996; Gartner & Birley, 2002; Cope, 2005; Iacobucci & Rosa, 2010; Levie & Lichtenstein, 2010; Leitch et al, 2010b). However, it does give more space for potential criticism. As the thesis is structured in three independent studies, the three will be discussed separately as follows.

In study I, the literature review was conducted on five (originally six) pre-selected journals. It can therefore be argued that the journals selected do not give a representative picture of the entire field. Considering that entrepreneurship is considered a practice-based discipline, more practice-based journals (such as Harvard Business Review) could have been included. It is acknowledged that the journal selection is by no means complete. However, it is arguable that the journals and studies selected, give a fairly accurate overview of the state of entrepreneurship research. The almost complete lack of studies examining the growth and profitability phenomenon, already gives a strong argument towards a distorted research focus. In general, the journals selected represented those among the most widely read and cited. It is however suggested, that further research should extend on the review. This could be done without pre-defining journals, but instead purposively selecting studies that have a more specific focus; privately-held firms, start-ups, studies examining both growth and profitability. Such a review would be valuable, in order to further explore the growth and profitability phenomenon. Due to the low

comparability between measures, and hence also between studies, future reviews could attempt to focus on only certain types of performance. Such a more narrow review, focusing only on studies using consistent measures, could contribute to the defragmentation of the field. The defragmentation could finally contribute to studies being built on more solid and comparable grounds, thus contributing to the generation of accumulated knowledge (Kuhn, 1970).

Study II consisted of two separate studies; IIA using Markov-chain analysis, and IIB using an exploratory methodology. When quantitative studies are made, criticism can often be directed on the sample selection, the representativeness of the sample and issues such as survivor bias. The sample used here is unique, as it includes all privately-held bio and IT firms registered in Finland. Due to some cut-offs made in the original sample of 1,699 firms it was reduced to 1,039 firms. This excluded both firms that had failed and those that had incomplete data. The number of failed firms was not specifically identified. Therefore, the study does not answer what strategies firms should follow to better avoid failure. However, a high-growth low profitability strategy is generally seen as risky as the firm may experience cash flow problems. Considering this, it can be said that the failing firms, are presumably not the ones achieving high-profitability, but instead those that do not. If the failed firms could be included in the Markov-analysis, result would most likely communicate even more strongly the importance of high profitability.

Study IIA is not deterministic, and nor does it imply strict causation. This is not what a Markov-chain analysis does. Instead, it provides a model of what is the most likely transition from one time-period to another. In other words, it answers how likely it is that a firm in one state will make the transition to another state in the future. This gives support for what kinds of strategies work as a pre-requisite for further profitable growth. The results concur with earlier studies, and they concur regardless of firm age. One could argue that the results are a Finnish phenomenon, affected by the methodology and measures used. Preliminary analyses have been made for international data; Sweden, Denmark, Germany, United Kingdom¹⁴. These results also concur, and similarly emphasize the importance of profitability. All these results should be further validated by using various measures, both relative and absolute, in order to arrive at a deeper understanding of the growth and profitability nexus.

Study IIB is more exploratory and examines the levels of growth and profitability among Finnish high-technology firms. Non-parametric measures are used due to non-normal sample distributions. Some researchers prefer the use of parametric measures. However, this would have required a transformation of the performance measures to make them normally distributed. This option was rejected in order to sustain the transparency and practical relevance of the results (Richard et al, 2009). In addition, it was necessary to maintain consistency with the measures from the Markov-chain analysis. The low levels of EBIT and operating result would require future research into the causes of this situation: what are the business models these

¹⁴ This data was extracted from the Orbis database by Tommi Pulkkinen and Pekka Stenholm from Turku School of Economics.

firms are using, and why are they using them? This includes an exploration of the business models built on different forms of growth, organic and/or through acquisition. Is profitability-orientation as important in business models built for different forms of growth? The non-existent differences between bio and IT firms, as well as firms of different ages, were unexpected. The generally accepted assumption is that bio-firms are distinct from other firms, especially from IT-firms. Therefore, future research should look more closely into these firms, and explore in more detail their performance. With the availability of full accounting data in Finland, the cost structures of the firms should be studied in more detail. This would give further evidence of the real performance of Finnish high-technology firms, and show where the increased income is directed. The non-existent differences in performance between firms of different ages, also needs further research. Whether the stagnated performance depends on unwillingness, or inability caused by internal or external factors, are issues that future research should attempt to answer. The notably high relative growth rates indicate a willingness to grow. Therefore, it should be studied in more detail how this growth is achieved and how it could be achieved more profitably.

In addition, the existence and affect of various stakeholder groups in business model development should be examined in more detail. In the context of business models, a deeper understanding of the profit-enhancing innovations, including all different forms of innovation, is needed. This thesis does not answer, in detail, what the profitable strategies are. This is something that leaves considerable scope for future research to examine.

Study III used an approach of requisite holism to explore the growth and profitability nexus from the stakeholder's perspective. The study aimed at gaining a deeper understanding of *how* the growth and profitability nexus is understood, and what the driving causes of these views were. Criticism of the purposive sampling could be given. However, the study purposively selected key informants in order to obtain an idea of the most dominating perspectives on growth and profitability. The respondents chosen were known to have extensive experience and knowledge in their field. The study does not attempt to generalize, but the sampling method chosen was hoped to give a more accurate overall picture in comparison to a random sample.

The thesis argues the existence of a high-growth myth, and that high-growth leading to high success is simply a black swan. Research stating the importance of high-growth start-ups was suggested to be a major contributor to the existence of such a myth. Future research should explore in more detail the foundations of the high-growth myth. Some potential research questions for future research could be as follows: Why has the growth experienced had such a contagious effect in so many contexts? What altered research from a profit orientation to a growth orientation? What are the theoretical arguments behind start-ups and high-growth? Why is public policy so focused on high-growth? What has contributed to the assumption

that high-growth equals success? Why are entrepreneurs achieving high-growth portrayed as heroes? Why is everything not based on profitability?

These are some of questions future research should endeavor to answer. The answers to these questions would further enrich our understanding of the growth and profitability nexus. They would continue to challenge the current wide distortion of growth and profitability, and hence contribute to restoring profitability to the core of entrepreneurship and thus to entrepreneurship research, entrepreneurship practice, and among entrepreneurship stakeholders.

REFERENCES

- Aaltonen, J. & Östermark, R. (1998). Mixed markov modelling of financial success: Empirical evidence with Swedish data. *Kybernetes*, 27(1), 54-70.
- Achtenhagen, L., Naldi, L., & Melin, L. (2010). "Business growth" – Do practitioners and scholars really talk about the same thing? *Entrepreneurship: Theory & Practice*, 34(2), 289–316.
- Adler, N. J. & Harzing, A-W. (2009). When knowledge wins: Transcending the sense and nonsense of academic rankings. *Academy of Management Learning & Education*, 8(1), 72-95.
- Aldrich, H. E. & Martinez, M. A. (2001). Many are called, but few are chosen: an evolutionary perspective for the study of entrepreneurship. *Entrepreneurship: Theory & Practice*, 25(4), 41-56.
- Allard-Poesi, F. & Maréchal, C. (2001). Constructing the research problem. In R-A. Thietart (ed.). *Doing management research: A comprehensive guide*. London, UK: Sage.
- Almus, M. & Nerlinger, E. A. (1999). Growth of new-technology-based firms: Which factors matter? *Small Business Economics*, 13, 141-154.
- Alvesson, M. (2003). Beyond neopositivists, romantics, and localists: A reflexive approach to interviews in organizational research. *Academy of Management Review*, 28(1), 13-33.
- Amit, R. (1986). Cost leadership and experience curve. *Strategic Management Journal*, 7(3), 281-292.
- Asiakastieto (2009). Asiakastieto Voitto+ CD. Available at: <http://www.asiakastieto.fi/en/luottoriski/julkaisut/voittoplus/> (29.4.2011)
- Asiakastieto (2011). Ratios used in the Voitto+ database. Available at: http://www.asiakastieto.fi/voitto/ohje/tunnusluvut_eng.htm (9.7.2011)
- Autio, E. (2007). *GEM 2007 Global Report on High-Growth Entrepreneurship*. GERA: London.
- Autio, E., Kronlund, M., & Kovalainen, A. (2007). High-growth SME support initiatives in nine countries: Analysis, categorization, and recommendations. Report prepared for the Finnish Ministry of Trade and Industry, *MTI Publications 1/2007*.

- Bacharach, S. B. (1989). Organizational theories: Some criteria for evaluation. *Academy of Management Review*, 14(4), 496-515.
- Barber, B. (1961). Resistance by scientists to scientific recovery. *Science*, 134, 596-602.
- Baumol, W. J. (1968). Entrepreneurship in economic theory. *The American Economic Review*, 58(2), 64-71.
- Bantel, K. A. (1998). Technology-based, "adolescent" firm configurations: Strategy identification, context, and performance. *Journal of Business Venturing*, 13(3), 205-230.
- Besanko, D., Dranove, D., & Shanley, M. (1996). *Economics and strategy*. New York, NY: John Wiley & Sons.
- Biosca, A. B. (2010). Growth Dynamics: Exploring business growth and contraction in Europe and the US. NESTA, research report. Available at: <http://www.nesta.org.uk/library/documents/GrowthDynamicsWebv3.pdf> (16.5.2011)
- Birch, D. (1987) *Job creation in America: How our smallest companies put the most people to work*. New York: Free Press.
- Birley, S. & Westhead, P. (1990). Growth and performance contrasts between 'types' of small firms. *Strategic Management Journal*, 11(7), 535-557.
- Bloodgood, J. A., Sapienza, H. J., & Almeida J. G. (1996). The internationalization of new high-potential U.S. ventures: Antecedents and outcomes. *Entrepreneurship: Theory & Practice*, 20(4), 61-76.
- Brush, C. G. & VanderWerf, P. A. (1992). A Comparison of Methods and Sources for Obtaining Estimates of New Venture Performance. *Journal of Business Venturing*, 7(2), 157-170.
- Brush, C. G., Manolova, T. S., & Edelman, L. F. (2008). Separated by a common language? Entrepreneurship research across the Atlantic. *Entrepreneurship: Theory & Practice*, 32(2), 249-266.
- Bruyat, C. & Julien, P-A. (2001). Defining the field of research in entrepreneurship. *Journal of Business Venturing*, 16(2), 165-180.
- Brännback, M. & Carsrud, A. (2008). Do they see what we see? A critical Nordic tale about perceptions of entrepreneurial opportunities, goals and growth. *Journal of Enterprising Culture*, 16(1), 55-89

- Brännback, M. & Carsrud, A. (2009). Cognitive maps in entrepreneurship: Researching sense making and action. In, A. Carsrud & M. Brännback (Eds.), *Understanding the entrepreneurial mind*. New York, NY: Springer.
- Brännback, M., Carsrud, A., Renko, M., Östermark, R., Aaltonen, J., & Kiviluoto, N. (2009). Growth and profitability in small privately held biotech firms: Preliminary findings. *New Biotechnology*, 25(5), 369-376.
- Brännback M., Kiviluoto, N., Carsrud, A., & Östermark, R. (2010). Much ado about nearly nothing? An exploratory study on the myth of high-growth technology start-up entrepreneurship. *Frontiers of Entrepreneurship Research*, 30(12), Article 1, Available at: <http://digitalknowledge.babson.edu/fer/vol30/iss12/1/> (3.10.2011)
- Busenitz, L. W., West III, G. P., Shepherd, D., Nelson, T., Chandler, G. N., & Zacharakis, A. (2003). Entrepreneurship research in emergence: Past trends and future directions. *Journal of Management*, 29(3), 285-308.
- Bygrave, W. D. & Hofer, C. W. (1991). Theorizing about entrepreneurship. *Entrepreneurship: Theory & Practice*, 16(2), 13-22.
- Campbell, J. (1949). *The hero with a thousand faces*. Princeton, NJ: Princeton University Press.
- Capon, N., Farley, J. U., & Hoenig, S. (1990). Determinants of financial performance: A meta-analysis. *Management Science*, 30(10), 1143-1159.
- Carson, D. & Coviello, N. (1996). Qualitative research issues at the marketing/entrepreneurship interface. *Marketing Intelligence & Planning*, 14(6), 51-58.
- Carsrud, A. L., Olm, K. W., & Eddy, G. G. (1986). Entrepreneurship: research in quest of a paradigm. In D. L. Sexton & R. W. Smilor (Eds.), *The Art and Science of Entrepreneurship*. Cambridge, MA: Ballinger Publishing Company.
- Carsrud, A. & Brännback, M. (2007). *Entrepreneurship*. Westport, CT: Greenwood Press.
- Casson, M. (2005). Entrepreneurship and the theory of the firm. *Journal of Economic Behavior & Organization*, 58(2), 327-348.
- Chan, Y. E., Bhargava, N., & Street, C. T. (2006). Having arrived: The homogeneity of high-growth small firms. *Journal of Small Business Management*, 44(3), 426-440.

- Carland, J. W., Hoy, F., Boulton, W. R., & Carland, J. A. (1984). Differentiating entrepreneurs from small business owners: A conceptualization. *The Academy of Management Review*, 9(2), 354-359.
- Carsrud, A. & Brännback, M. (2011). Entrepreneurial motivations: What do we still need to know? *Journal of Small Business Management*, 49(1), 9-26.
- Christensen, C. M. & Raynor, M. E. (2003). *The innovator's solution- Creating and sustaining successful growth*. Boston, MA: Harvard University Press.
- Churchill, N. C. & Mullins, J. W. (2001). How fast can your company afford to grow? *Harvard Business Review*, May 79 (5), 135-142.
- Cohen, J. (1977). *Statistical power analysis for the behavioral sciences*. New York, NY: Academic Press.
- Cole, A. H. (1959). *Business enterprise in its social setting*. Cambridge, MA: Harvard University Press.
- Coleman, S. (2007). The role of human and financial capital in the profitability and growth of women-owned small firms. *Journal of Small Business Management*, 45(3), 303-319.
- Cooper, A. C. (1986). Entrepreneurship and high technology. In D. L. Sexton & R. W. Smilor (Eds.), *The Art and Science of Entrepreneurship*. Cambridge, MA: Ballinger Publishing Company.
- Cooper, A. (2005). Entrepreneurship: The past, the present, the future. In Z. J. Acs & D. B. Audretsch (Eds.), *Handbook of entrepreneurship research*. New York, NY: Springer.
- Cope, J. (2005). Researching entrepreneurship through phenomenological inquiry: Philosophical and methodological issues. *International Small Business Journal*, 23(2), 163-189.
- Covin, J. G., Slevin, D. P., & Covin, T. J. (1990). Content and performance of growth-seeking strategies: A comparison of small firms in high- and low-technology industries. *Journal of Business Venturing*, 5, 391-412.
- Cowling, M. (2004). The growth-profit nexus. *Small Business Economics*, 22(1), 1-9.
- Cunningham, J. B. & Lischeron, J. (1991). Defining entrepreneurship. *Journal of Small Business Management*, 29(1), 45-61.
- Curran, J. & Blackburn, R. A. (2001). *Researching the small enterprise*. London, UK: SAGE Publications

- Davidsson, P. (2005). *Researching entrepreneurship*. Boston, MA: Springer
- Davidsson P. & Delmar, F. (2001). Levels of analysis in entrepreneurship research: Current research practice and suggestions for the future. *Entrepreneurship: Theory & Practice*, 25(4), 81-99.
- Davidsson P. & Delmar, F. (2006). High-growth firms and their contribution to employment: The case of Sweden 1987-96. In P. Davidsson, F. Delmar, & J. Wiklund (eds.), *Entrepreneurship and the growth of firms*. Cheltenham, UK: Edward Elgar
- Davidsson, P., Delmar, F., & Wiklund, J. (2006). Entrepreneurship as growth; growth as entrepreneurship. In P. Davidsson, F. Delmar & J. Wiklund (eds.), *Entrepreneurship and the growth of firms*. Cheltenham, UK: Edward Elgar.
- Davidsson, P., Delmar, F., & Wiklund, J. (2002). Entrepreneurship as growth; growth as entrepreneurship. In M.A. Hitt, R.D. Ireland, S. M. Camp, & D. L. Sexton (eds.), *Strategic entrepreneurship: Creating a new mindset*. Oxford UK: Blackwell Publishing.
- Davidsson, P., Steffens, P., & Fitzsimmons, J. (2007). Performance assessment in entrepreneurship research: is there a pro-growth bias? Manuscript downloadable from <http://eprints.qut.edu.au/archive/00012040>.
- Davidsson, P., Steffens, P., & Fitzsimmons, J. (2009). Growing profitable or growing from profits: Putting the horse in front of the cart? *Journal of Business Venturing*, 24(4), 388-406.
- Day, G. S. & Montgomery, D. B. (1983). Diagnosing the experience curve. *Journal of Marketing*, 47(2), 44-58.
- Decarolis, D. M. & Deeds, D. L. (1999). The impact of stocks and flows of organizational knowledge on firm performance: an empirical investigation of the biotechnology industry. *Strategic Management Journal*, 20(1), 953-968.
- Deeds, D. L., DeCarolis, D., & Coombs, F. E. (1997). The impact of firm-specific capabilities on the amount of capital raised in an initial public offering: Evidence from the biotechnology industry. *Journal of Business Venturing*, 12(1), 31-46.
- Deeds, D. L., DeCarolis, D., & Coombs, F. E. (1999). Dynamic capabilities and product development in high-technology ventures: An empirical analysis of new biotechnology firms. *Journal of Business Venturing*, 15(3), 211-229.

- Delmar, F., Davidsson, P., & Gartner, W. B. (2003). Arriving at the high-growth firm. *Journal of Business Venturing*, 18(2), 189-216.
- Deloitte (2009). Informaatioteknologia hallituksen agendalle: Tutkimus hallitusammattilaisten näkemyksistä. Available at: <http://www.deloitte.com/assets/Dcom-Finland/Local%20Assets/Documents/IT%20hallituksissa%20final%20nettiin.pdf> (4.7.2011)
- Deloitte (2011). Deloitte 2010 Fast Technology 50. Available at: http://www.deloitte.com/view/en_AU/au/industries/tmt/techfast/index.htm (29.4.2011)
- Devinney, T. M., Yip, G. S., & Johnson, G. (2010). Using frontier analysis to evaluate company performance. *British Journal of Management*, 21(4), 921-938.
- Donaldson, T. & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, 20(1), 65-91.
- Donckels, R. & Lambrecht, J. (1995). Networks and small business growth: An explanatory model. *Small Business Economics*, 7(4), 273-289.
- Douglas, E. (2009). Perceptions- Looking at the world through entrepreneurial lenses. In, A. Carsrud & M. Brännback (Eds.), *Understanding the entrepreneurial mind*. New York, NY: Springer.
- Drucker, P. F. (1982). *The changing world of the executive*. New York, NY: Truman Talley Books.
- Drucker, P. F. (1985). *Innovation and Entrepreneurship*. New York, NY: HarperCollins.
- Drucker, P. F. (2001). *The essential Drucker*. New York, NY: HarperCollins.
- Eisenmann, T. R. (2006). Internet companies' growth strategies: Determinants of investment intensity and long-term performance. *Strategic Management Journal*, 27(12), 1183-1204.
- Ensley, M. D., Pearson, A. W., & Amason, A. C. (2002). Understanding the dynamics of new venture top management teams: cohesion, conflict, and new venture performance. *Journal of Business Venturing*, 17(4), 365-386.
- EU: SBA 2008. "Think small first", a "small business act" for Europe. Commission of the European Communities, available at: <http://ec.europa.eu/enterprise/policies/sme/small-business-act/> (20.4.2011).

- EU: Lisbon 2000. Lisbon European Council 23 and 24 March 2000: Presidency conclusions. European Parliament, available at: http://www.europarl.europa.eu/summits/lis1_en.htm (24.4.2011).
- EU: 2020. European commission Europe 2020. European Commission, available at: http://ec.europa.eu/eu2020/index_en.htm (24.4.2011).
- Fast-500 Vietnam (2011). List names 500 fastest growing firms. Available at: <http://vietnambusiness.asia/list-names-500-fastest-growing-firms/> (29.4.2011)
- Feeser, H. R. & Willard, G. E. (1990). Founding strategy and performance: A comparison of high and low growth high tech firms. *Strategic Management Journal*, 11(2), 87-98.
- Finnish Limited Liability Companies Act (21.7.2006/624), available at: <http://www.finlex.fi/en/laki/kaannokset/2006/en20060624.pdf> (18.4.2011)
- Fischer, E. & Reuber, A. R. (2003). Support for rapid-growth firms: A comparison of the views of founders, government policymakers, and private sector resource providers. *Journal of Small Business Management*, 41(4), 346-365.
- Florin, J., Lubatkin, M., & Schulze, W. (2003). A social capital model of high-growth ventures. *The Academy of Management Journal*, 46(3), 374-384.
- FMEE Growth Entrepreneurship. Growth entrepreneurship: The Finnish governmental website. Available at: <http://www.tem.fi/index.phtml?l=en&s=2383> (29.4.2011).
- FMEE (2010). Government's communication on Finland's national innovation strategy to the parliament. Available at: http://www.tem.fi/files/21010/National_Innovation_Strategy_March_2009.pdf (29.4.2011)
- Frooman, J. (1999). Stakeholder influence strategies. *The Academy of Management Review*, 24(2), 191-205.
- Frigstad, D. (2011). Chairman Letter from Frost & Sullivan, available at: <http://www.frost.com/prod/servlet/letter.pag> (6.6.2011)
- Gadiesh, O. & Gilbert, J. L. (1998). Profit pools: A fresh look at strategy. *Harvard Business Review*, 76(3), 139-147.
- Gartner, W. B. (1985). A conceptual framework for describing the phenomenon of new venture creation. *The Academy of Management Review*, 12(4), 696-706.

- Gartner, W. B. (1988). "Who is an Entrepreneur?" is the Wrong Question. *American Journal of Small Business*, 12(4), 11-31.
- Gartner, W. B. (2001). Is there an elephant in entrepreneurship? Blind assumptions in theory development. *Entrepreneurship: Theory & Practice*, 25(4), 27-39.
- Gartner, W. B., Davidsson, P., & Zahra, S. A. (2006). Are you talking to me? The nature of community in entrepreneurship scholarship. *Entrepreneurship: Theory & Practice*, 30(3), 321-331.
- Giacalone, R. A. (2009). Academic rankings in research institutions: A case of skewed mind-sets and professional amnesia. *Academy of Management Learning & Education*, 8(1), 122-126.
- Gibb, A. A. (2000). SME policy, academic research and the growth of ignorance, mythical concepts, myths, assumptions, ritual and confusions. *International Small Business Journal*, 18(13), 13-35.
- Gibb, A. A. & Davies, L. (1990). Methodological problems in the development of a growth model of business enterprise. *Journal of Entrepreneurship*, 1(3), 3-36.
- Gilbert, B. A., McDougall P. P., & Audretsch, D. B. (2006). New venture growth: A review and extension. *Journal of Management*, 32(6), 926-950.
- Girod-Séville, M. & Perret, V. (2001). Epistemological foundations. In R-A. Thietart (ed.). *Doing management research: A comprehensive guide*. London, UK: Sage.
- Google Scholar (2009). About the ranking method offered by Google Scholar. E-mail correspondence between the author and Google Support Team on the 24th of March 2009.
- Grégoire, D. A., Noël, M. X., Déry, R., & Béchar, J. (2006). Is there conceptual convergence in Entrepreneurship Research? A co-citation analysis of *Frontiers of Entrepreneurship Research*, 1981-2004. *Entrepreneurship: Theory & Practice*, 30(3), 333-373.
- Grenier, C. & Josserand, E. (2001). Researching content and researching process. In R-A. Thietart (ed.). *Doing management research: A comprehensive guide*. London, UK: Sage.
- Haltiwanger, J. C., Jarmin, R. S., & Miranda, J. (2010). Who creates jobs? Small vs. large vs. young. National Bureau of Economic Research, Working Paper 16300. Available at: <http://www.nber.org/papers/w16300.pdf> (10.5.2011).
- Haltiwanger, J. C., Jarmin, R. S., & Miranda, J. (2011). Business dynamics statistics briefing: Historically large decline in job creation from startup and existing

firms in the 2008-2009 recession. Kauffman: The foundation of entrepreneurship. Available at:

http://www.ces.census.gov/docs/bds/plugin-BDS%20March%202011%20single_0322_FINAL.pdf (10.5.2011)

Harrison, R. T., Mason, C. M., & Girling, P. (2004). Financial bootstrapping and venture development in the software industry. *Entrepreneurship & Regional Development*, 16(4), 307-333.

Harzing (2011). Harzing Publish or Perish database. Available at:

<http://www.harzing.com/pop.htm> (29.4.2011).

Hayek, F. A. (1974). Nobel prize lecture: The pretence of knowledge. Available at:

http://nobelprize.org/nobel_prizes/economics/laureates/1974/hayek-lecture.html (25.4.2011)

Hindle, K. (2004). Choosing qualitative methods for entrepreneurial cognition research: A canonical development approach. *Entrepreneurship: Theory & Practice*, 28(6), 575-607.

Hofer, C. W. & Bygrave, W. D. (1992). Researching Entrepreneurship. *Entrepreneurship: Theory & Practice*, 16(3), 91-100.

Hopeasaari, V. (2011). Palkka voi olla osinkoa edullisempaa. Article in *Tilisanomat, Taloushallintoliitto: Association of Finnish Accounting Firms*.

Iacobucci, D. & Rosa, P. (2010). The growth of business groups by habitual entrepreneurs: The role of entrepreneurial teams. *Entrepreneurship: Theory & Practice*, 34(2), 353-379.

Inc. Magazine (2011). The webpage of Inc. magazine. Available at:

<http://www.inc.com/magazine/20100901/index.html> (29.4.2011)

Ireland, R. D., Hitt, M. A., Camp, S. M., & Sexton, D. L. (2001). Integrating entrepreneurship and strategic management actions to create firm wealth. *Academy of Management Executive*, 15(1), 49-63.

Jacsó, P. (2005). Google Scholar: The pros and the cons. *Online Information Review*, 29(2), 208-214.

Johanson, J. & Vahlne, J-E. (1977). The internationalization process of the firm- A model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies*, 8(1), 23-32.

- Katz, J. A. (2003). The chronology and intellectual trajectory of American entrepreneurship education 1986-1999. *Journal of Business Venturing*, 18(2), 283-300
- Katz, M. L. & Shapiro, C. (1985). Network externalities, competition, and compatibility. *The American Economic Review*, 75(3), 424-440.
- Kauppalehti (2011). Uutisarkisto (News archive). Available at: <http://www.kauppalehti.fi/5/i/talous/uutiset/arkisto/newBasicQuery.do> (29.4.2010)
- Kirzner I. M. (1973). *Competition and entrepreneurship*. Chicago: University of Chicago Press.
- Kirzner, I. M. (2009). The alert and creative entrepreneur: A clarification. *Small Business Economics*, 32(2), 145-152.
- Kiviluoto, N., Brännback, M., & Carsrud, A. (2010). Back to square one? Comparing experts' perceptions of venture growth and profitability with financial facts. Paper presented at the AGSE 2010 Conference, Sunshine Coast, Australia.
- Kiviluoto, N., Brännback, M., & Carsrud, A. (2011). Are firm growth and performance the same or different concepts in empirical entrepreneurship studies? An analysis of the dependent and independent variables. In, M. Raposo, D. Smallbone, K. Balaton, & L. Hortovanyi (Eds.), *Entrepreneurship, growth and economic development*. Cheltenham, UK: Edward Elgar.
- Knorr-Cetina, K. (2000). *Epistemic cultures- How sciences make knowledge*. Cambridge, MA: Harvard University Press.
- Krueger, N., Reilly, M. D., & Carsrud, A. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5-6), 411-432.
- Kuhn T. S. (1970). *The structure of scientific revolutions*. Chicago, IL: University of Chicago.
- Leitch, C. Hill, F., & Neergard, H. (2010a). Entrepreneurial and business growth and the quest for a "comprehensive theory": Tilting the windmills? *Entrepreneurship: Theory & Practice*, 34(2), 249-260.
- Leitch, C. M., Hill, F. M., & Harrison, R. T. (2010b). The philosophy and practice of interpretivist research in entrepreneurship- Quality, validation and trust. *Organizational Research Methods*, 13(1), 67-84.
- Leppiniemi, J. & Leppiniemi, R. (2011). *Tilinpäätöksen tulkinta*. Helsinki: WSOYPro Oy.

- Levie, J. & Lichtenstein, B. B. (2010). A terminal assessment of stages theory: Introducing a dynamic states approach to entrepreneurship. *Entrepreneurship: Theory & Practice*, 34(2), 317-351.
- Levie, J., Don, D., & Leleux, B. (2011). The new venture mortality myth. In K. Hindle & K. Klyver (Eds.), *Handbook of research on new venture creation*. Cheltenham, UK: Edward Elgar.
- Lieberman, M. B. & Montgomery, D. B. (1988). First-mover advantages. *Strategic Management Journal*, 9, 41-58.
- Liebowitz, S. J. & Margolis, S. E. Network externality: an uncommon tragedy. *The Journal of Economic Perspectives*, 8(2), 133-150.
- Low, M. B. & MacMillan, I. C. (1988). Entrepreneurship: Past research and future challenges. *Journal of Management*, 14(2), 139-161.
- Lucas, Jr. R. E. (1978). On the size distribution of business firms. *The Bell Journal of Economics*, 9(2), 508-523.
- MacDonald, P (1999). Power, Type I, and Type III Error Rates of Parametric and Nonparametric Statistical Tests. *Journal of Experimental Education*, 67(4), 367-379.
- Macpherson, A. & Holt, R. (2007). Knowledge, learning and small firm growth: A systematic review of the evidence. *Research Policy*, 36(2), 172-192.
- Maidique, M. A. (1986). Key success factors in high-technology ventures. In D. L. Sexton & R. W. Smilor (Eds.), *The Art and Science of Entrepreneurship*. Cambridge, MA: Ballinger Publishing Company.
- Malhotra, N. K. (2004). *Marketing research- An applied orientation*. New Jersey, NJ: Pearson Prentice Hall.
- March, J. G. & Sutton, R. I. (1997). Organizational performance as a dependent variable. *Organization Science*, 8(6), 698-706.
- Marcus, R. (2010). The little engine that can't: The myth about small business and jobs. *Washington Post*, 15th of September 2010. Available at: <http://www.washingtonpost.com/wp-dyn/content/article/2010/09/14/AR2010091405459.html> (16.5.2010).
- Markman, G. D. & Gartner, W. B. (2002). Is extraordinary growth profitable? A study of inc. 500 high-growth companies. *Entrepreneurship: Theory & Practice*, 27(1), 65-75.

- Mason, C. M. & Harrison, R. T. (2006). After the exit: acquisitions, entrepreneurial recycling and regional economic development. *Regional Studies*, 40(1), 55-73.
- McKelvie, A. & Wiklund, J. (2010). Advancing firm growth research: A focus on growth mode instead of growth rate. *Entrepreneurship: Theory & Practice*, 34(2), 261-288.
- McMahon, R. G. P. (2001). Business growth and performance and the financial reporting of Australian manufacturing SMEs. *Journal of Small Business Management*, 39(2), 152-164.
- Miles, M. B. & Huberman, A. M. (1984). Drawing valid meaning from qualitative data: Toward a shared craft. *Educational Researcher*, 13(5), 20-30.
- Miles, M. B. & Huberman, A. M. (1994), *Qualitative Data analysis*, 2nd Edition. Thousand Oaks, CA: Sage Publishing.
- Murphy, G. B., Trailer, J. W., & Hill, R. C. (1996). Measuring performance in entrepreneurship research. *Journal of Business Research*, 36(1), 15-23.
- Murray, G., Hyytinen, A., & Maula, M. (2009). Growth entrepreneurship and finance in Ministry of Education and the Ministry of Employment and the Economy, Evaluation of the Finnish national innovation system- Full report. *Taloustieto Oy*, Helsinki
- Neumark, D., Wall, B. & Chang, J. (2010). Do small businesses create more jobs? New evidence from the national establishment time series. *National Bureau of Economic Research*, working paper 13818, available at: <http://www.nber.org/papers/w13818> (16.5.2011).
- Nicholls-Nixon, C. L. (2005). Rapid growth and high performance: The entrepreneur's "impossible dream?". *Academy of Management Executive*, 19(1), 77-89.
- Nkomo, S. M. (2009). The seductive power of academic rankings: challenges of searching for the otherwise. *Academy of Management Learning & Education*, 8(1), 106-112.
- Orpen, C. (1985). The effects of long-range planning on small business performance: A further examination. *Journal of Small Business Management*, 23(1), 16-23.
- Palepu, K. (1985). Diversification strategy, profit performance and the entropy measure. *Strategic Management Journal*, 6(3), 239-255.
- Pallant, J. (2005). *SPSS survival manual- A step by step guide to data analysis using SPSS version 12*. New York, NY: Open University Press.

- Pearce II, J. A., Robbins, D. K., & Robinson Jr., R. B. (1987). The impact of grand strategy and planning formality on financial performance. *Strategic Management Journal*, 8(2), 125-134.
- Penrose, E. T. (1952). Biological analogies in the theory of the firm. *The American Economic Review*, 42(5), 804-819.
- Penrose, E. T. (1959). *The theory of the growth of the firm*. Oxford: Basil Blackwell.
- Pitelis, C. N. (2009). Edith Penrose's 'The Theory of the Growth of the Firm' fifty years later in Penrose, E. (2009). *The theory of the growth of the firm (4th ed.)*, New York, NY: Oxford University Press.
- Popper, K. (1959). *The logic of scientific discovery*. New York, NY: Routledge.
- Porter, M. (1990). *The competitive advantage of nations*. London: The Macmillan Press.
- PRH (2011). The official webpage of the national board of patents and registration of Finland. Available at: <http://www.prh.fi/en.html> (3.8.2011).
- Profit Guide (2011). 23rd annual profit-200: Canada's fastest growing companies. Available at: http://www.profitguide.com/awards/profit200_2011 (29.4.2011)
- Pukkinen, T. Stenholm, P., & Malinen, P. (2005). Kasvuyritysten määrän mittaaminen. In J. Heinonen (Ed.), *Kasvun olemus ja reitit: Fokuksessa suomalaiset pk-yritykset*. Turku: Turun Kauppakorkeakoulu.
- Qian, G. & Li, L. (2003). Profitability of small-and medium-sized enterprises in high-tech industries: the case of the biotechnology industry. *Strategic Management Journal*, 24(9), 881-887.
- Ratnatunga, J. & Romano, C. (1997). A "citations classics" analysis of articles in contemporary small enterprise research. *Journal of Business Venturing*, 12(3), 197-212.
- Raisch, S. (2008). Balanced structures: Designing organizations for profitable growth. *Long Range Planning*, 41(5), 483-508.
- Rauch, A. & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, 16(4), 353-385.

- Reader, D. & Watkins, D. (2006). The social and collaborative nature of entrepreneurship scholarship: A co-citation and perceptual analysis. *Entrepreneurship: Theory & Practice*, 30(3), 417-441.
- Rebernik, M. & Mulej, M. (2000). Requisite holism, isolating mechanisms and entrepreneurship. *Kybernetes*, 29(9/10), 1126-1140.
- Renko, M., Carsrud, A., & Brännback, M. (2009). The effects of a Market Orientation, Entrepreneurial Orientation, and Technology Capability on Innovativeness: A study of Young Biotechnology Ventures in the United States and in Scandinavia. *Journal of Small Business Management*, 47(3), 331-369
- Reynolds, P. D. (1997). Who starts new firms? Preliminary explorations of firms-in-gestation. *Small Business Economics*, 9(5), 449-462.
- Richard, P. J., Devinney, T. T., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: Towards methodological best practice. *Journal of Management*, 34(3), 718-804.
- Robinson, K. C. (1998). An examination of the influence of industry structure on eight alternative measures of new venture performance for high potential independent new ventures. *Journal of Business Venturing*, 14(2), 165-187.
- Roper, S. (1999). Modelling small business growth and profitability. *Small Business Economics*, 13(3), 235-252.
- Rosa, P. (1998). Entrepreneurial processes of business cluster formation and growth by 'habitual' entrepreneurs. *Entrepreneurship: Theory & Practice*, 22(4), 43-61.
- Rostow, W. W. (1959). The stages of economic growth. *The Economic History Review*, 12(1), 1-16.
- Royer, I. & Zarlowski, P. (2001). Research design. In R-A. Thietart (ed.), *Doing management research: A comprehensive guide*. London, UK: Sage.
- Rue, L. W. & Ibrahim, N. A. (1998). The relationship between planning sophistication and performance in small businesses. *Journal of Small Business Management*, 36(4), 24-32.
- Sandberg, W. R. (1992). Strategic management's potential contributions to a theory of entrepreneurship. *Entrepreneurship: Theory & Practice*, 16(3), 73-90.
- Schmiemann, M. (2008). Enterprises by size class- overview of SMEs in the EU. Industry, trade and services, Eurostat report 31/2008.

- Schneider, C. & Veugelers, R. (2010). On young innovative companies: Why they matter and how (not) to policy support them. *Industrial and Corporate change*, 19(4), 969-1007.
- Schumpeter, J. A. (1928). The instability of capitalism. *The economic journal*, 38 (151), 361-386.
- Schumpeter, J. A. (1934). *The theory of economic development*. Cambridge: Harvard University Press.
- Schumpeter, J. A. (1954). *Capitalism, socialism, and democracy*. London, UK: Allen & Unwin.
- Shane, S. & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217-226.
- Shane, S. (2003). *A general theory of Entrepreneurship*, Edward Elgar, Cheltenham, UK.
- Shane, S. (2008). *The Illusions of Entrepreneurship*. London: Yale University Press.
- Shane, S. (2009). Why encouraging more people to become entrepreneurs is bad public policy. *Small Business Economics*, 33(2), 141-149.
- Shepherd D. A. & Wiklund, J. (2005). *Entrepreneurial small businesses- A resource-based perspective*. Cheltenham, UK: Edward Elgar Publishing.
- Shepherd, D. & Wiklund, J. (2009). Are we comparing apples with apples or apples with oranges? Appropriateness of knowledge accumulation across growth studies. *Entrepreneurship: Theory & Practice*, 33(1), 105-123.
- Siegel S. & Castellan N. J. Jr. (1988). *Nonparametric statistics for the behavioral sciences*. New York, NY: McGraw-Hill.
- Statfin (2009). The business database of Statistics Finland. Available at: http://pxweb2.stat.fi/database/StatFin/yri/syr/010_yr_tol08/010_yr_tol08.fi.asp (7.7.2011).
- Stangler, D. & Litan, R. E. (2009). Where will the jobs come from? *Ewing Marion Kauffman Foundation*, Kauffman Foundation Research Series: Firm formation and economic growth, Paper nr. 1.
- Steffens, P., Davidsson, P., & Fitzsimmons, J. (2009). Performance configuration over time: Implications for growth- and profit-oriented strategies. *Entrepreneurship: Theory & Practice*, 33(1), 125-148.
- Stevenson H. H. & Jarillo, J. C. (1990). A paradigm of entrepreneurship: Entrepreneurial management. *Strategic Management Journal*, 11(5), 17-27.

- Szymanski, D. M., Bharadwaj, S. D., & Varadarajan, P. R. (1993). An analysis of the market share-profitability relationship. *Journal of Marketing*, 57(3), 1-18.
- Taleb, N. N. (2004). The roots of unfairness: The black swan in arts and literature. *Literary Research, Journal of the International comparative literature association*. Available at <http://www.fooledbyrandomness.com/ARTE.pdf> (14.4.2011).
- Taleb, N. N. (2007). *The black swan- The impact of the highly improbable*. New York, NY: Random House.
- Tekes 2011. Tekes- the Finnish Agency for Technology and Innovation. Official webpage. Available at : http://www.tekes.fi/en/community/About_Tekes/339/About_Tekes/1279 (10.7.2011)
- Tilles, S. (1963). How to evaluate corporate strategy. *Harvard Business Review*, Jul/Aug: 111-121.
- Tivi (2011). Tämä on Tivi 250. Available at: <http://www.tietoviikko.fi/listat/tivi250/> (29.4.2011)
- Van de Ven, A. H. (1989). Nothing is quite so practical as a good theory. *Academy of Management Review*, 14(4), 486-489.
- Van de Pol, F., Langeheine, R., & de Jong, W. (1991). Panmark user manual: Panel analysis using Markov chains. *Voorburg*: Netherlands Central Bureau of Statistics.
- VanderWerf, P. A. & Mahon, J. F. (1997). Meta-analysis of the impact of research methods on findings of first-mover advantage. *Management Science*, 43(11), 1510-1519.
- Venkataraman, S. (1997). The distinctive domain of entrepreneurship research: An editor's perspective. In J. Katz & R. Brockhaus (Eds.), *Advances in entrepreneurship, firm emergence, and growth*. Greenwich, CT: JAI Press.
- Venkataraman, N. & Ramanujam, V. (1986). Measurement of business performance in strategy research: A comparison of approaches. *The Academy of Management Review*, 11(4), 801-814.
- Weinzimmer, L. G., Nystrom, P. C., & Freeman, S. J. (1998). Measuring organizational growth: Issues, consequences and guidelines. *Journal of Management*, 24(2), 235-262.

- Weick, K. E. (1989). Theory construction as disciplined imagination. *Academy of Management Review*, 14(4), 516-531.
- Wiklund, J., Davidsson, P., & Delmar, F. (2003). What do they think and feel about growth? An expectancy-value approach to small business managers' attitudes towards growth. *Entrepreneurship: Theory & Practice*, 27(3), 247-270.
- Winch, P. (1958). *The idea of social science and its relation to philosophy*, 2nd edition. London, UK: Routledge.
- Whetten, D. A. (1989). What constitutes a theoretical contribution? *Academy of Management Review*, 14(4), 490-495.
- Wolff, J. A. & Pett, T. L. (2006). Small-firm performance: Modeling the role of product and process improvements. *Journal of Small Business Management*, 44(2), 268-284.
- Zahra, S. A. (1996). Technology strategy and new venture performance: A study of corporate-sponsored and independent biotechnology ventures. *Journal of Business Venturing*, 11(4), 289-321.
- Zahra, S. A. & Garvis, D. M. (2000). International corporate entrepreneurship and firm performance: The moderating effect of international environmental hostility. *Journal of Business Venturing*, 24(3), 258-260.
- Zahra, S. A., Ireland, R. D., & Hitt, M. A. (2000). International expansion by new venture firms: International diversity, mode of market entry, technological learning, and performance. *Academy of Management Journal*, 43(5), 925-950.
- Zahra, S. A., Neubaum, D. O., & El-Hagrassey, G. M. (2002). Competitive analysis and new venture performance: Understanding the impact of strategic uncertainty and venture origin. *Entrepreneurship: Theory & Practice*, 27(1), 1-28.
- Özbilgin, M. F. (2009). From journal rankings to making sense of the world. *Academy of Management Learning & Education*, 8(1), 113-121.

APPENDIX I - ARTICLES USED IN THE LITERATURE REVIEW

Journal	Authors	Title	Year
AoM	Boeker	Strategic change: The influence of managerial characteristics and organizational growth	1997
AoM	Baum	A multidimensional model of venture growth	2001
AoM	Anderson	Smith	1984
AoM	Auto	Zeithaml	2000
AoM	Shane	Sapienza Almeida	1996
AoM	McGuire	Sundgren	1988
AoM	Bourgeois III	Schneeweis	1985
AoM	Florin	Lubatkin	2003
AoM	Aupperle	Carroll	1985
AoM	Lumpkin	Dess	1995
AoM	Sharma	Kesner	1996
AoM	Dellos	Beamish	2001
AoM	Collins	Smith	2006
AoM	Hitt	Hoskisson Kim	1997
AoM	Greve	Ireland Hitt	2008
AoM	Zahra	Friesen	2000
AoM	Miller	Atuahene-Gima	1982
AoM	Li	Reuter Peng	2001
AoM	Tong	Westhead	2008
ETP	Markman	Gartner	1995
ETP	Hanks	Watson Jansen	2002
ETP	Chandler	Hanks	1993
ETP	Covin	Green	1994
ETP	Reuber	Fischer	2006
ETP	Zahra	Neubaum	2002
ETP	McMahon	El-Hagrassey	2001
ETP	Steffens	Davidsson	2009
ETP	Delmar	Wiklund	2008
ETP	Isaksen	Isaksen	2006
ETP	Moreno	Ljunggren	2008
ETP	Bloodgood	Casilas	1996
ETP	Shrader	Sapienza Almeida	2007
		Segel	

Journal	Authors	Slevin	Covin	Covin	Year
JBV	Covin	Slevin	Covin	Content and performance of growth-seeking strategies: a comparison of small firms in high-and low- ...	1990
JBV	Willard	Krueger	Feeser	In order to grow, must the founder go: A comparison of performance between founder and non-founder managed high-growth ...	1992
JBV	Feeser	Willard		Incubators and performance: a comparison of high-and low-growth high-technology firms	1989
JBV	Covin	Slevin	Heeley	Pioneers and followers Competitive tactics, environment, and firm growth	2000
JBV	Delmar	Davidsson	Gartner	Arriving at the high-growth firm	2003
JBV	Jarillo			Entrepreneurship and growth: The strategic use of external resources	1989
JBV	Cliff			Does one size fit all? Exploring the relationship between attitudes towards growth, gender, and business size	1998
JBV	Sapienza	Parhankangas	Autio	An examination of the influence of industry structure on eight alternative measures of new venture performance for high potential independent new ventures	2004
JBV	Robinson			Technology-based, "adolescent" firm configurations strategy: identification, context, and performance	1999
JBV	Bantel			Businesses without glamour? An analysis of resources on performance by size and age in small service ...	1998
JBV	Brush	Chaganti		Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal ...	1999
JBV	Zahra	Covin		Using founder status, age of firm, and company growth rate as the basis for distinguishing ...	1995
JBV	Begley	Dess		Linking two dimensions of entrepreneurial orientation to firm performance The moderating role of ...	1995
JBV	Lumpkin			Technology strategy and new venture performance: a study of corporate-sponsored and independent ...	2001
JBV	Zahra	Rubanik		Resources of the firm, Russian high-technology startups, and firm growth	1996
JBV	Bruton			The hidden hand and the license raj to an evaluation of the relationship between age and the growth of firms in India	2002
JBV	Majumdar	Dant		Multi-unit franchising: growth and management issues	2004
JBV	Kaufmann	Shrader	Tompson	Newness and novelty: Relating top management team composition to new venture performance	1996
JBV	Amason			The effects of human capital, organizational demography, and interpersonal processes on venture partner perceptions of firm profit and growth	2006
JBV	Watson	Stewart	BarNir	International corporate entrepreneurship and firm performance The moderating effect of international ...	2003
JBV	Zahra	Garvis		Venture capital financing and the growth of startup firms	2000
JBV	Davila	Foster	Gupta	Understanding the dynamics of new venture top management teams: cohesion, conflict, and new venture performance	2003
JBV	Enley	Pearson	Amason	New venture internationalization, strategic change, and performance: a follow-up study	2002
JBV	McDougall	Oviatt		Entrepreneurial orientation and small business performance: a configurational approach	1996
JBV	Wiklund	Shepherd		The temporal nature of growth determinants in new bank founding's: implications for new venture ...	2005
JBV	Bamford	Dean	Douglas	Knowledge, innovation and firm performance in high-and low-technology regimes	2004
JBV	Thorhill			Technology strategy and software new ventures' performance Exploring the moderating effect of the ...	2006
JBV	Zahra	Bogner		Entrepreneur opportunity costs and intended venture growth	2000
JBV	Cassar	McKelvie	Davidsson	Asset specificity and behavioral uncertainty as moderators of the sales growth – Employment growth relationship in emerging ventures	2006
JBV	Chandler	Silverman		Picking winners or building them? Alliance, intellectual, and human capital as selection criteria in venture financing and performance of biotechnology startups	2008
JBV	Baum			Is venture capital worth it? Effects on firm performance and founder returns	2004
JBV	Florin		Fitzsimmons	Growing profitable or growing from profits: putting the horse in front of the cart?	2005
JBV	Davidsson	Steffens		New venture strategy and profitability A venture capitalists assessment	2008
JBV	Shepherd	Ettenson	Crouch		2000

JBV	Zahra			Technology strategy and financial performance: Examining the moderating role of the firm's ...	1996
JBV	Zahra	Hayton		The effect of international venturing on firm performance: The moderating influence of absorptive ...	2008
JBV	Jones	Lancot	Teegen	Determinants and performance impacts of external technology acquisition	2001
JBV	Westhead	Wright	Ucbasaran	The internationalization of new and small firms A resource-based view	2001
JSBM	Olson	Bokor		Strategy Process-Content Interaction: Effects on Growth Performance in Small Start-Up Firms.	1995
JSBM	Wijewardena	Tibbits		Factors Contributing to the Growth of Small Manufacturing Firms: Data from Australia.	1999
JSBM	McMahon	Davies		Financial Reporting and Analysis Practices in Small Enterprises: Their Association with Growth Rate and Financial Performance.	1994
JSBM	Merz	Weber	Laetz	Linking Small Business Management with Entrepreneurial Growth.	1994
JSBM	McMahon			Business Growth and Performance and the Financial Reporting Practices of Australian Manufacturing SMEs	2001
JSBM	Chaston	Mangles		Core Capabilities as Predictors of Growth Potential in Small Manufacturing Firms.	1997
JSBM	Weinzimmer			Top Management Team Correlates of Organizational Growth in a Small Business Context: A Comparative Study	1997
JSBM	Hornaday	Wheatley		Managerial Characteristics and the Financial Performance of Small Business.	1986
JSBM	Begley	Boyd		Executive and Corporate Correlates of Financial Performance in Smaller Firms.	1986
JSBM	Davidsson	Kirchhoff	Hatemij	Empirical analysis of business growth factors using Swedish data	2002
JSBM	Upton	Teal	Felan	Strategic and business planning practices of fast growth family firms	2001
JSBM	Rue	Ibrahim		The Relationship between Planning Sophistication and Performance in Small Businesses.	1998
JSBM	Pearson	Bracker	White	Operations Management Activities of Small, High Growth Electronics Firms.	1990
JSBM	Wijewardena	Cooray		Determinants of growth in small manufacturing firms: The Japanese experience	1995
JSBM	Wolff	Pett		Small-Firm Performance: Modeling the Role of Product and Process Improvements*	2006
JSBM	Sadler-Smith	Hampson	Chaston	Managerial behavior, entrepreneurial style, and small firm performance	2003
JSBM	Orpen			The Effects of Long-Range Planning on Small Business Performance: A Further Examination.	1985
JSBM	Acar			The Impact of Key Internal Factors on Firm Performance: An Empirical Study of Small Turkish Firms.	1993
JSBM	Beekman	Robinson		Supplier partnerships and the small, high-growth firm: selecting for success	2004
JSBM	Shrader	Mulford	Blackburn	Strategic and Operational Planning, Uncertainty, and Performance in Small Firms.	1989
JSBM	Coleman			The Role of Human and Financial Capital in the Profitability and Growth of Women-Owned Small Firms	2007
JSBM	Haber	Reichel		Identifying Performance Measures of Small Ventures-The Case of the Tourism Industry	2005

Journal	Authors	Title	Year
SMJ	Stuart	Interorganizational alliances and the performance of firms: a study of growth and innovation rates ...	2000
SMJ	McDougall	The effects of industry growth and strategic breadth on new venture performance and strategy content	1994
SMJ	Birley	Growth and performance contrasts between 'types' of small firms	1990
SMJ	Bracker	Planning and financial performance among small firms in a growth industry	1988
SMJ	Feesser	Funding strategy and performance: A comparison of high and low growth high tech firms	1990
SMJ	Christensen	Corporate economic performance: Diversification strategy versus market structure	1981
SMJ	Palepu	Diversification strategy, profit performance and the entropy measure	1985
SMJ	Cho	Relationship between innovativeness, quality, growth, profitability, and market value	2005
SMJ	Wiklund	Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium- ...	2003
SMJ	Dess	Entrepreneurial strategy making and firm performance: Tests of contingency and configurational models	1997
SMJ	Baum	Don't go it alone: Alliance network composition and startups' performance in Canadian biotechnology	2000
SMJ	Pearce II	The impact of grand strategy and planning formality on financial performance	1987
SMJ	Mishina	Are more resources always better for growth? Resource stickiness in market and product expansion	2004
SMJ	Eisenmann	Internet companies' growth strategies: determinants of investment intensity and long-term performance	2006
SMJ	Bracker	Planning and financial performance of small, mature firms	1986
SMJ	Varaiya	The relationship between growth, profitability, and firm value	1987
SMJ	Brush	The free cash flow hypothesis for sales growth and firm performance	2000
SMJ	Baum	Strategic decision speed and firm performance	2003
SMJ	Hill	External control, corporate strategy, and firm performance in research-intensive industries	1988
SMJ	Rumelt	Diversification strategy and profitability	1982
SMJ	Goll	Rational decision-making and firm performance: the moderating role of the environment	1997
SMJ	Robinson Jr	The impact of formalized strategic planning on financial performance in small organizations	1983
SMJ	Hitt	Functional importance and company performance: moderating effects of grand strategy and industry ...	1982
SMJ	Rhyne	The relationship of strategic planning to financial performance	1986
SMJ	Miller	Firms' technological resources and the performance effects of diversification: a longitudinal study	2004

APPENDIX II- FINANCIAL MEASURES USED IN STUDY II (Source: Asiakastiето, 2011)

Relative measures:

Sales growth:

The ratio indicates the increase or decrease in turnover in relation to the previous financial year. It can be deducted from the value of the ratio, whether the company's operations have expanded or reduced in the latest financial year. The ratio is converted to correspond to 12 months, if the financial year deviates from this. The ratio has been calculated using the formula:

$$\frac{\text{turnover of the financial year} - \text{turnover of the previous financial year}}{\text{turnover of the previous financial year}} \times 100$$

The ratio is used as the indicator of the development of volume, relating to the line of business.

Operating margin

Ratio of profitability. The ratio indicates the result of the company's business activities before depreciations and financial items. The value of the ratio has to be compared with companies in the same line.

The operating margin is calculated from the financial statements in the following way: Depreciations according to plan, reduction in value of goods held as non-current assets and exceptional reduction in value of current assets are added to the operating result. The calculation formula is:

$$\frac{\text{operating margin}}{\text{turnover}} \times 100$$

Indicative values from different lines of business:

Trade 2 - 10 %

Services 5 - 15 %

Industry 10 - 25 %

EBIT (Earnings before interest and taxes)

Ratio of profitability. The ratio indicates the result of the company before financial items. As the operating margin in %, the ratio is used for indicating the success of the company's business activities, but it takes better into account the differences between lines of business. The ratio has been calculated using the formula:

$$\frac{\text{result for the operations}}{\text{turnover}} \times 100$$

Indicative values:

over 10 % = good

5 - 10 % = satisfactory

under 5 % = poor

Quick ratio

Ratio of liquidity. The ratio indicates the company's possibility to meet its short-term debts with current assets. The annual development of the company's financial standing can be monitored with the help of this ratio. The saleability and liquidity of the current assets have to be taken into account when interpreting the ratio. The ratio has been calculated using the formula:

$$\frac{\text{current assets}}{\text{short-term debts - advances received}}$$

Indicative values:

over 1,0 = good

0,5 - 1,0 = satisfactory

under 0,5 = poor

Current ratio

Ratio of liquidity. The ratio indicates the company's possibility to meet its short-term debts with current assets and inventories. With the help of this ratio, it is possible to monitor the annual development of the company's financial standing. The saleability and liquidity of the current assets have to be taken into account when interpreting the ratio. The ratio has been calculated using the formula:

current assets + inventories

short-term debts

Indicative values:

over 2,0 = good

1,0 - 2,0 = satisfactory

under = 1,0 poor

ROI (Return on investment)

The ratio indicates relative profitability, i.e. return, which has been obtained for the capital invested in the company and requiring interest or other returns. The return on investment is a ratio independent from lines of business. The ratio has been calculated using the formula:

result before extraordinary items + expenses of liabilities (12 months)

----- x 100

(balance sheet total of the newest balance sheet - interest-free debts)

(balance sheet total of the previous balance sheet - interest-free debts) / 2

Indicative values:

over 15 % = good

9 - 15 % = satisfactory

0 - 9 % = passable

under 0 % = poor

ROA (Return on assets)

Result before extraordinary items + costs of liabilities (12 months)

----- x 100

(Balance sheet total of the newest balance sheet + Balance sheet total of the previous balance sheet) / 2

The ratio measures the company's ability to yield profit to the total capital tied in the business operations.

Indicative values:

over 10 % good

5-10 % satisfactory

under 5 % poor

Equity ratio

Ratio of solvency. This indicates the company's solvency by comparing the equity in the balance sheet to the balance sheet total, i.e. it tells how much equity the company has in relation to the total capital. The ratio is independent

from the line of business, and the saleability of the property items in the balance sheet effect its interpretation. The equity ratio has been calculated using the formula:

$$\frac{\text{equity + provisions}}{\text{balance sheet total - advances received}} \times 100$$

Indicative values:
 over 40 % = good
 20 - 40 % = satisfactory
 under 20 % = poor

Net Gearing

$$\frac{\text{interest-bearing liabilities - cash and marketable securities}}{\text{equity}}$$

The ratio measures the company's financial structure, i.e. the relation between interest-bearing debts and equity. The ratio is independent from the business sector. When the value of the ratio is below one (1), it can be considered good.

Debt to sales ratio

$$\frac{\text{Short- and long-term liabilities + compulsory provisions - advances received (short- and long-term)}}{\text{Net sales (12 months)}} \times 100$$

The ratio is used for evaluating what kind of internal financing requirement is set for the company by liabilities.

Indicative values:
 under 40 % good
 40-80 % satisfactory
 over 80 % poor.

Working capital

$$\frac{\text{Working capital (= Inventories + trade receivables (short-term) - trade payables (short-term) - advances received (short-term))}}{\text{Net sales (12 months)}} \times 100$$

Working capital indicates the amount of financing tied up in the ongoing business operations of the company. In the working capital, %, working capital

is compared with the turnover (net sales), as the working capital items are dependent on the turnover. The relation of the working capital required by the operations to the turnover is largely dependent on the business sector of the company. For example, when making forecasts, the working capital, % gives a very good picture of the financing needs that the expansion of operations causes.

Absolute performance measures

Sales/Turnover

The sales/turnover indicate the company's actual income from business operations, from which the value-added tax and other taxes based directly on the amount of sales have been deducted.

Gross result

The gross result is an intermediate sum, which is acquired as the following items have been added to or deducted from the turnover: "other income from business operations", "manufacture for own use"; "change in stocks", "purchases during the financial year", and "external services".

Operating result

The operating result indicates the result of the company before financial items. It is acquired when the following items have been deducted from the gross result: "administrative expenses" and "other operating expenses".

Net result

Result of the financial year.

APPENDIX III- TRANSLATED INTERVIEW MANUAL

Personal background

1. Could you shortly describe your own background (education, job experience, experience from the biotech industry/the industry that is most common to you)?

Background questions

2. What do you think that best characterizes the Finnish biotech industry at the moment? What kinds of problems do the firms have, and how does the recession affect them?
3. What does the biotech industry look like in comparison to other Finnish industries?
4. Do biotech firms vary significantly in comparison to firms in other industries? If yes, how and why?
5. What is the best performance measure for a biotech SME, and why?

Growth and profitability

6. Define growth and how do you measure it?
7. Define profitability and how do you measure it?
8. What is profitable growth?
9. Are the same growth and profitability measures usable in different firms/industries?
10. Do you see a relationship between growth and profitability, and if yes, what kind?
11. Which would prioritize, growth or profitability, and why?
12. Is it justifiable to sacrifice resources in order to build profitability instead of growth?
13. Is it justifiable to invest in growth if the firm has low profitability?
14. In the long-term, is it possible to improve profitability with growth?
15. Does growth deteriorate profitability?
16. Is growth a good measure of success?
17. How long does it take on average for a biotech firm to become profitable?
18. How many profitable biotech firms are there in Finland, and which are they?
19. Why do so few companies manage to grow, what could be the reason for this?
20. Do companies want to grow, and which factors may affect this?
21. Growth and profitability matrix questions (ask about transitions)

Planning and finance

22. How important is business planning?
23. What do firms plan for in the first place, is it growth or profitability, and does this vary depending on the stage of the lifecycle?
24. Is it difficult for biotech firms to raise finance?
25. How do you find information about potential deal flows?
26. In what way do you evaluate biotech firms?
27. How does the evaluation vary between biotech firms and firms in other industries?
28. What are the finance decisions based on finally, what are the most significant factors?
29. What are your expected returns on investments?
30. How does public finance affect a firm? Do they really benefit the firm?
31. How do you relate to public finance?
32. How do you relate to venture capital investments?
33. What will the Finnish biotech industry look like in five or ten years time?

34. Interest to participate in a survey later on?
35. Is there anything you would like to add to your answers or to the matters we have discussed?

Questions were always tailored to some degree for the respondent, depending on their specific industry or current position.

SVENSK SAMMANFATTNING

Att återupptäcka lönsamhet inom entreprenörskap: belägg från nya finska högteknologiföretag

Syftet med denna avhandling är att utmana sambandet mellan tillväxt och lönsamhet inom tre kontexter: entreprenörskapsforskning, entreprenörskap och intressenternas perspektiv. Att uppnå detta syfte är ytterst viktigt; sambandet mellan tillväxt och lönsamhet har förvrängts i alla tre kontexter. Förvrängningen är rätt så avgörande, eftersom lönsamhet borde vara en självklarhet i alla dessa sammanhang (Schumpeter, 1934; Penrose, 1959; Kirzner, 1973; Drucker, 1982; Venkataraman, 1997; Gadiesh & Gilbert, 1998; Kim & Mauborgne, 2000; Churchill & Mullins, 2001; Drucker, 2001; Ireland et al, 2001; Christensen & Raynor, 2003; Qian & Li, 2003; Gilbert et al, 2006; Raisch, 2008; Davidsson et al, 2009; Steffens et al, 2009).

Trots detta har en lönsamhetsfokus nästan helt försvunnit inom dessa kontexter och blivit ersatt av en fokus på tillväxt och framförallt hög tillväxt (Tilles, 1963; Birch, 1987; Capon et al, 1990; Gartner, 1997; Gadiesh & Gilbert, 1998; Weinzimmer et al, 1998; Christensen & Raynor, 2003; Delmar, 2003; Nicholls-Nixon, 2005; Davidsson & Delmar, 2006; Autio et al, 2007; Davidsson et al, 2009; Murray et al, 2009; Steffens et al, 2009; Brännback et al, 2010; Haltiwanger et al, 2010; Kiviluoto et al, 2010; McKelvie & Wiklund, 2010). Den nuvarande allmänna normen verkar vara att tillväxt blint prioriteras över lönsamhet. Detta är något denna avhandling försöker få en ändring på.

Den allmänna uppfattningen om sambandet mellan tillväxt och lönsamhet är att hög tillväxt förr eller senare kommer att leda till hög lönsamhet. Således ses tillväxt som ett mått på ett företags framgång och som ett mål värt att eftersträva. Forskningsresultaten från de senaste åren motsäger denna norm. I stället för tillväxt är det lönsamhet som är en förutsättning för fortsatt lönsam tillväxt; de företag som först uppnår högre lönsamhet än sina konkurrenter, har upp till tre gånger större sannolikhet att uppnå en position där de både växer snabbare och är mer lönsamma än sina konkurrenter (Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009). Dessa studier visar även att en ändring av den strategiska positionen kan vara oerhört svår i efterhand, vilket ytterligare betonar betydelsen av att fatta de rätta strategiska besluten om tillväxt och lönsamhet genast från start.

Det är svårt att uppfatta hur det övergripande tillväxtmantrat inom entreprenörskap egentligen har uppstått. Den forskning som den teoretiska grunden inom ämnet till största delen vilar på, är först och främst fokuserad på lönsamhet (Schumpeter, 1928; Penrose, 1959; Kirzner, 1973). I den forskningen är lönsamhet helt enkelt en fundamental del av entreprenörskap: en drivkraft och ett mål. Detta överensstämmer inte med situationen idag och det verkar som om lönsamhet skulle ha blivit ersatt med tillväxt. Orsaken till detta är svår att bedöma. Det som man trots allt kan

konstatera är, att intresset för framför allt tillväxtentreprenörskap har varit rent av explosionsartad under de senaste två decennierna (se figur 1, kapitel 5).

Trots ett explosionsartat forskningsintresse för ämnet, kritiserar den teoretiska utvecklingen för att ha varit långsam, samtidigt som forskningsresultaten beskrivs som ofullständiga och kontradiktoriska. Detta har lett till att ackumulerad kunskap inte har skapats och argumentationen inom ämnet är förhållandevis elementär; konsensus har inte uppnåtts gällande grundläggande frågor som definitioner, forskningsmetoder och mättningsvariabler. Därför har nya tillvägagångssätt upprepade gånger efterlysts i tidigare forskning (Carson & Coviello, 1996; Gartner & Birley, 2002; Cope, 2005; Leitch et al, 2010b).

Det verkar nästan som om forskningen inom ämnet har drivits mer av antaganden än vetenskapligt visade resultat. Detta är inget nytt fenomen. Berättelser, antaganden och myter är något som alltid existerat inom vårt samhälle (Campbell, 1949). Deras påverkan har visat sig vara betydande även i vardagliga sammanhang. Ett flertal forskare har kunnat visa hur beslutsfattandet även i företagsvärlden i grund och botten styrs av antaganden och myter (Drucker, 1982; Gibb, 2000; Shane, 2008, 2009; Levie et al, 2011). Denna avhandling argumenterar för att tillväxt är en sådan myt. Två saker har bidragit till att denna myt har skapats: (I) ett enormt intresse för de snabbast växande företagen på grund av att de tillskrivits en stor betydelse för en ekonomis välfärd (Birch, 1987; Carter et al, 1994; Reynolds, 1997; Davidsson & Delmar, 2006; Stangler & Litan, 2009; Haltiwanger et al, 2010) och (II) den allmänt accepterade uppfattningen att hög tillväxt är entydigt ett bevis på framgång (Birch, 1987; Carter et al, 1994; Reynolds, 1997; Autio et al, 2007; Davidsson & Delmar, 2006; Brännback et al, 2009; Davidsson et al, 2009; Steffens et al, 2009; Haltiwanger et al, 2010; Kiviluoto et al, 2010).

Metod och forskningskontext

Entreprenörer agerar i ett ekosystem tillsammans med ett antal andra aktörer som alla har en påverkan på entreprenören (Cole, 1959; Gartner, 1985; Frooman, 1999; Aldrich & Martinez, 2001; Davidsson, 2005; Carsrud & Brännback, 2007; Brännback & Carsrud, 2009; Levie & Lichtenstein, 2010). Entreprenörer lever inte i ett vakuum och för att bättre förstå entreprenörskap måste man även förstå vad som händer runt omkring.

Entreprenörskapsforskningen har till största delen varit influerad av en positivistisk kunskapssyn och kvantitativ forskning har dominerat fältet (Carson & Coviello, 1996; Cope, 2005; Davidsson, 2005). Kritiken mot ämnets nuvarande tillstånd är inte ogrundad och forskare har upprepade gånger uppmanats att se på tillväxtfenomenet från nya infallsvinklar (Carson & Coviello, 1996; Gartner & Birley, 2002; Cope, 2005; Iacobucci & Rosa, 2010; Leitch et al, 2010b; Levie & Lichtenstein, 2010). Denna avhandling strävar efter att följa dessa uppmaningar genom att se på tillväxt och lönsamhet inom tre olika kontexter. Inom dessa försöker jag utmana (eng. challenge) sambandet mellan tillväxt och lönsamhet.

Processen att utmana något, som en kunskapsskapande metod, är härledd från Poppers (1959) syn på falsifiering. Även om det inte handlar om falsifiering i sin striktaste form, försöker också jag i avhandlingen utmana nuvarande normer och kunskap; något som även eftersträvas med falsifiering. En utmaning av så kallad normal vetenskap (eng. normal science) är något som kan föra ett vetenskapsområde framåt (Popper, 1959). Enligt Popper (1959) kan något utmanas genom att erbjuda ett motiverat alternativ till det nuvarande. Som alternativ argumenterar jag i avhandlingen för en entydig ersättning av tillväxt med lönsamhet i de tre studerande kontexterna. Bevisföringen sker genom svarandet på följande forskningsfrågor:

- Varför är det motiverat (eng. justified) att ersätta tillväxt med lönsamhet inom entreprenörskapsforskning?
- Varför är det motiverat att ersätta tillväxt med lönsamhet inom entreprenörskap?
- Varför är det motiverat att ersätta tillväxt med lönsamhet bland intressenternas perspektiv?

Genom att argumentera för en strikt ersättning av tillväxt med lönsamhet är avhandlingen som helhet influerad av en positivistisk kunskapssyn. Det är ändå inget som hindrar att kunskapssyner kombineras (Miles & Huberman, 1994; Grenier & Josseland, 2001; Bryman, 2007). Enligt Popper (1959) har enstaka fall ingen betydelse för vetenskapen. Därför försöker jag i avhandlingen använda olika synsätt, alla grundade i olika kunskapssyner, för att starkare kunna motivera för ersättningen av tillväxt med lönsamhet i de studerande kontexterna.

Den empiriska delen fokuserar kontextuellt på nya företag inom högteknologibranscher, bioteknologi och informationsteknologi. Analysen är på företagsnivå, med det övergripande målet att skapa ekonomiskt hållbara, lönsamt växande företag. Det empiriska materialet är tredelat: (I) en litteraturgenomgång av 118 artiklar inom ledande journaler, (II) en analys av finansiella data på alla nya högteknologiföretag i Finland mellan 1995 och 2003 samt (III) en analys av 23 kvalitativa intervjuer med entreprenörer, beslutsfattare, riskfinansiärer och offentliga finansiärer.

Entreprenörskap och tillväxtentreprenörskap

Avhandlingens teoretiska ramverk fokuserar på entreprenörskap och tillväxtentreprenörskap. Utgående från Cole (1959, 7) definieras entreprenörskap på följande sätt: Entreprenörskap är en målmedveten aktivitet (innehållandes en kombination av beslut) genomförd av en individ, eller en grupp av individer och innefattar att ett företag startas, upprätthålls och drivs för lönsamhetsorienterad tillväxt. Till skillnad från ett flertal andra definitioner innehåller denna tre fundamentala element: (I) Entreprenörskap handlar om nya företag, (II) entreprenörskap handlar om hållbarhet (upprätthållande) och (III) entreprenörskap har ett klart definierat prestationsmål (lönsam tillväxt).

Forskningen inom tillväxtentreprenörskap kan delas in i tre självständiga forskningsnischer: tillväxt som en följd, följd av tillväxt och tillväxt som en process (McKelvie & Wiklund, 2010). De två första är av relevans för avhandlingen och nuläget inom entreprenörskapsforskningen diskuteras med dessa som utgångspunkt. Flera frågor problematiseras och diskuteras för att undersöka de faktorer som bidragit till nuläget inom tillväxtentreprenörskap: en brist på ackumulerad kunskap, en stark fragmentering och ett behov för mer holistiska forskningsansatser. Mycket av kritiken mot ämnet beror på bristen av konsensus gällande grundläggande faktorer som definitioner och mätning. Trots ett explosionsartat intresse för företagets tillväxt anser man att förvånansvärt lite kan sägas om fenomenet (Leitch et al, 2010a).

Tre potentiella orsaker diskuteras som bidragit till att forskningen inom tillväxtentreprenörskap har anlänt i sitt nuläge. För det första handlar det om analysnivån. Inom tillväxtentreprenörskap är den dominerande analysnivån på företagsnivå. Följaktligen har individens inverkan uteslutits från diskussionen, även om det är den individuella entreprenören som slutligen fattar de beslut som påverkar företagets tillväxt och lönsamhet. Achtenagen et al (2010) upprepade samma som Penrose (1952) konstaterade nästan 60 år tidigare; individens inverkan på företagets framgång har inte fått den uppmärksamhet som skulle vara befogad.

För det andra är ett företags prestation ett multidimensionellt fenomen. En viss prestation är en följd av komplexa beslut och sammanslutningar. Således blir det också en utmaning att mäta den. Tidigare forskning har påvisat fler mätningssätt än vad det finns studier som berör ämnet (Murphy et al, 1996; Bruch et al, 2009; Richard et al, 2009). Då man endast ser till tillväxten, är de vanligaste mätningssätten försäljning och antalet anställda (Weinzimmer et al, 1998; Delmar, 2006; Shepherd & Wiklund, 2009; Achtenagen et al, 2010). Redan dessa två mätningssätt för att inte tala om alla övriga, är två totalt distinkta prestationsdimensioner och en följd av olika företagslogik och strategiska beslut.

För det tredje används olika prestationsmått ofta som jämförbara även om de är en följd av distinkta strategiska beslut. Olika prestationsmått ses helt enkelt som likvärdiga mått på ett företags prestation. För att exemplifiera detta kan nämnas det vanligaste tillväxtmättet inom olika kontexter, relativ försäljningsökning. Trots dess vida användning inom forskning, praktiken och allmän press, är relativ försäljningstillväxt inte jämförbar med något annat prestationsmått, varken tillväxt eller lönsamhet (se tabell 35 och 35, kapitel 7.3.1). Ändå ses relativ försäljningsökning allmänt som ett mått på ett företags framgång.

En låg jämförbarhet mellan prestationsmått kan ha av avgörande betydelse då man beaktar bristen av ackumulerad forskning. Entreprenörskapsforskningen har inte tagit i beaktande att väldigt få prestationsmått i själva verket är jämförbara eller utbytbara med varandra (Weinzimmer et al, 1998; Delmar, 2006; Shepherd & Wiklund, 2009; Achtenagen et al, 2010). Med andra ord är forskningsresultat som använder ett sätt att mäta prestation, väldigt sällan jämförbara med resultat som

mäter prestation på ett annat sätt eller till om med under an annan tidpunkt. Då forskare inte beaktar detta finns en fara för felaktiga slutsatser och en ytterligare fragmentering.

Forskningsresultat

Den första studien i avhandlingen fokuserar på entreprenörskapsforskningen. Genom en litteraturgenomgång av 118 artiklar i fem ledande journaler inom entreprenörskap och ledarskap granskas hur tillväxt och lönsamhet studeras bland startande högteknologiföretag. Resultaten visar en tydlig brist på studier. I totalt 22 artiklar (19 %) studeras högteknologiföretag och tio av dessa behandlar privata företag. Totalt tar endast fyra studier av 118 (3,4 %) i beaktande tillväxt och lönsamhet bland privatägda högteknologiföretag (se Covin et al, 1990; Bantel, 1998; Zahra & Bogner, 1999; Li & Atuahene-Gima, 2001). Alla av dessa använder självutvärderade data, inga behandlar små företag och ingen artikel behandlar sambandet mellan tillväxt och lönsamhet.

Den andra studien innehåller två delstudier av 1039 finska högteknologiföretags finansiella prestationer. I den första delstudien studeras sambandet mellan tillväxt och lönsamhet genom en Markov-modellering. Resultaten visar att företag som först säkrar en hög lönsamhet, i stället för hög tillväxt, har upp till tre gånger större sannolikhet att uppnå lönsam tillväxt. Då man endast ser på hög lönsamhet mot låg lönsamhet, visar studien att företag med 74 % sannolikhet förblir i den position de varit i året innan. Alla resultat stämmer oberoende av företagets ålder. I den andra, explorativa delstudien, granskas företagens faktiska finansiella prestation. Resultaten visar att företagen lyckas öka sin försäljning, men däremot lyckas inte förvandla den ökade inkomsten till högre lönsamhet. I medeltal lyckas bioteknologiföretagen uppnå en rörelsevinst på 20 300 € och informationsteknologiföretagen en rörelsevinst på 12 500 €. Skillnaderna är icke-signifikanta mellan branscherna och mellan företag av olika ålder.

I den tredje kvalitativa studien har 23 intervjuer genomförts med fyra olika intressentgrupper: entreprenörer, riskfinansiärer, offentliga finansiärer och beslutsfattare. Resultaten bekräftar förekomsten av en tillväxtmyt, där rena antaganden styr åsikter och beslutsfattande. Tydliga indikationer fås om att tillväxt föredras över lönsamhet. Tillika bekräftas den flerdimensionella karaktären av företagsprestationen, där individens beslut måste tas i beaktande för att djupgående förstå det komplexa förhållandet mellan tillväxt och lönsamhet. Dessutom identifieras intressenternas existens och mångfald, som kan ha en betydande inverkan på ett företags beslut och prestation.

Kontribution

På basis av avhandlingens tre empiriska studier kan konstateras ett starkt behov av att återupptäcka lönsamhet inom entreprenörskap. Således har resultaten tydliga implikationer inom de tre studerade kontexterna. Det kan bekräftas att tillväxt har fått en mytliknande status. Genom oproportionellt starkt fokus på hög tillväxt på ett brett fält inom entreprenörskap, har strävan efter tillväxt blivit en norm.

Förväntningarna av tillväxtens nytta drivs av rena antaganden, i stället för av vetenskaplig forskning. Detta har haft en enorm påverkan på entreprenörskapsfältet och förvrängt förhållandet mellan tillväxt och lönsamhet. Taleb (2004) kallar den här typen av fenomen för svarta svanar (eng. black swans). Denna avhandling föreslår att uppfattningen att hög tillväxt leder till hög lönsamhet endast är en svart svan. Hur, när och varför denna har uppstått besvaras inte djupgående inom ramen för denna avhandling, utan snarare bekräftas dess existens och dess implikationer visas. Således ses det som högst motiverat att ersätta tillväxt med lönsamhet i de tre studerade kontexterna.

Entreprenörskapsforskning borde i grund och botten fokusera på de typiska företagen inom en ekonomi: små, privatägda företag. Trots detta studeras dessa väldigt sällan. Ännu mer sällan studeras både tillväxt och lönsamhet bland dessa; sådan forskning förekommer så gott som inte alls. Forskning om lönsamhet bland startande företag borde vara central inom entreprenörskapsforskning, men nuvarande praxis ligger långt ifrån detta. För att uppnå detta behövs en stark ändring av nuvarande forskningsfokus. Efter ett par decennier av forskningsintresse inom tillväxtentreprenörskap är det ändamålsenligt att fråga sig vad vi egentligen vet om hela fenomenet.

För entreprenörer borde strävan efter lönsamhet vara företages viktigaste strategiska riktning. Resultaten från den andra studien lyfter fram denna kritiska synpunkt; att ett företag blir lönsamt så tidigt som möjligt är av avgörande betydelse för företagets framtida lönsamma tillväxt. En ändring av strategisk riktning är svår på efterhand, vilket gör det viktigt att fatta de rätta besluten genast från början. Enligt Drucker (2007) har ett företag åtta mål: marknadsföring, innovation, personresurser, finansiella resurser, fysiska resurser, produktivitet, socialt ansvar och lönsamhet. Alla mål innehåller kostnader som ett företags intäkter skall kunna betala för. Dessutom skall intäkterna räcka till för att bygga upp en buffert (Drucker, 2007). Först det överskott som blir kvar efter alla dessa kan kallas lönsamhet. Med en median rörelsevinst på under 20 000 €, kan man konstatera att väldigt få företag inom de finländska högteknologibranscherna lyckas med detta.

Tillväxtentreprenörskap har varit ett centralt tema bland beslutsfattarna och inom politiken allt sedan millennieskiftet (EU: Lisbon 2000; Gibb, 2000; Autio et al, 2007; EU: SBA 2008; EU: 2020). Enligt avhandlingens resultat stöder detta fel ändamål. Implikationerna av detta för beslutsfattare blir därför att skapa en ändring där stöd ges för rätt ändamål; att ge entreprenörer en möjlighet att driva verksamhet som fokuserar på ökad lönsamhet. Andra typer av stöd distraherar entreprenören från detta essentiella mål.

The aim of the thesis is to bring profitability back into entrepreneurship: into entrepreneurship research, into entrepreneurship practice, and into entrepreneurship stakeholder perspectives. Such an aim may sound surprising, to say the least, but the facts show that profitability has almost completely been replaced in the three contexts mentioned. What has replaced profitability is growth, and especially high-growth. High-growth has become the focus of entrepreneurship research, it is what policy makers worldwide try to foster; investors pursue, and entrepreneurs try to achieve. It has become the norm, business-as-usual, and nobody seems to question its underlying assumptions.

This thesis challenges the current growth and profitability nexus. By doing so, the author hopes to bring profitability back onto the center stage- the place it used to be, and the place where it ought to be. This is done by exploring the phenomenon in three separate studies, all focusing on a specific context; entrepreneurship research, entrepreneurship practice (Finnish bio and IT firms), and entrepreneurship stakeholder perspectives (entrepreneurs, venture capitalists, public investors, and policy makers).

The three studies show how distorted the growth and profitability nexus really is, and how dominant the high-growth mantra has become. It affects how people think, behave, and make decisions. Therefore, this thesis argues for the correction of this distortion by the rediscovery of profitability in entrepreneurship.

Åbo Akademi University Press



ISBN 978-951-765-616-0