Ragnhild Hjermstad

Predicting the Winners

An empirical study on Norwegian exporting SMEs

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Master's thesis in Industrial Economics and Technology Management
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Abstract

It is well established that a small group of high-growth high-performers are the main contributors to economic growth and new job creation. These are mainly small and young innovative companies that immediately internationalize, so-called Born Global firms (BGs). The Winners denote the top-performers of this group. The socio-economic value of these firms raises an interesting question: Is it possible to predict which ventures will become Winners based on a set of shared success factors?

In the last two decades, more new ventures have been established than ever before. Meanwhile, only about 10 % survive long-term. This makes knowledge on the success factors that drive the performance of the firms that do succeed highly relevant. Such insight is of great value to entrepreneurs and managers, investors, politicians, and policy makers, who all aim to cultivate success. Moreover, the economic importance of these firms makes it important from a societal perspective.

The purpose of this study is to examine which traits that drive the performance of the Winners. Previous studies have investigated characteristics of the entrepreneur and the venture's growth and performance separately. The present study aims to inspect both aspects and how they are interrelated.

The study is conducted as a quantitative longitudinal study. The dataset, which spans 13 years from 2008 to 2020, builds on a survey conducted in 2014. The final sample includes 203 Norwegian Small-Medium Enterprises (SMEs) that engage in export activities. Two main hypotheses were investigated. The first stated that the growth of the Winners is characteristic and related to the internationalization (degree of Born Globalness). The second stated that the mindset of the leadership shapes several crucial features of the Winners that directly relate to their performance. These were explored through 4 and 3 sub-hypotheses, respectively. Descriptive statistics, correlational analyses, univariable analysis of variance (ANOVA), and regression analyses were used.

The results show that the Winners are highly international and display an outstanding and persistent growth. A significant share can be characterized as born-to-run. These appear to be precursors to the superfirms called Gazelles. The Winners possess a distinctive mindset that appears to be a crucial success factor. This mindset is directional for actions that drive their performance. Moreover, the Winners have an expert ability to seek, obtain, and internalize knowledge, and rapidly translate this into organizational and operational improvements. Having a resourceful affiliated companies is a common trait from which the Winners seem to draw a lot of inspiration, knowledge, and support.

In conclusion, it is indeed possible to identify several shared success factors that drive the performance of the Winners and make them stand out from the rest. These build on both pure financial analysis and inspection of soft traits, which are interrelated. This suggests that it is possible to predict which firms have potential to become Winners. However, more knowledge on these top-performers is necessary, given their great socio-economic value. New studies investigating more financial indicators that are characteristic to the development of the Winners is encouraged. Moreover, further exploration of the Winners' mindset contributes to a more complete understanding of the drivers of their success.

Sammendrag

Det er vel kjent at en mindre gruppe med høyvekstbedrifter utgjør de viktigste bidragsyterne til økonomisk vekst og skaper mesteparten av nye arbeidsplasser. Disse er hovedsakelig små og unge innovative selskaper som umiddelbart blir internasjonale, såkalte Born Globals (BGs). Begrepet 'The Winners' betegner de beste i denne gruppen. Den sosioøkonomiske verdien av disse firmaene reiser et interessant spørsmål: Er det mulig å forutsi hvilke selskaper som kommer til å bli vinnere, basert på et felles sett med suksessfaktorer?

Siden år 2000 har flere nye virksomheter blitt etablert enn noen gang før, en trend som har økt den seneste tiden. Samtidig er det bare rundt 10 % av nye selskaper som overlever på lang sikt. Dette gjør kunnskap om hvilke suksessfaktorer som kjennetegner de bedriftene som lykkes svært relevant. Innsikt rundt dette tema er av stor verdi for gründere og bedriftsledere, investorer, politikere, og beslutningstakere, som alle har som mål å dyrke suksess. Samtidig gjør den økonomiske betydningen til disse firmaene denne innsikten viktig fra et samfunnsperspektiv.

Formålet med denne studien er å undersøke hvilke kjennetegn ved vinnerne som er driverne bak deres prestasjon. Tidligere studier har undersøkt gründerens egenskaper og virksomhetens vekst og prestasjon hver for seg. Denne studien tar sikte på å inspisere begge disse sidene ved et selskap og hvordan de henger sammen.

Studien er utført som en kvantitativ longitudinell studie. Datasettet er bygget opp rundt en undersøkelse utført i 2014, og strekker seg over 13 år fra 2008 til 2020. Dette gjør det mulig å studere selskapenes finansielle utvikling både før og etter tidspunktet for spørreundersøkelsen, der informasjon ble samlet inn for å analysere tankesettene. Det endelige datautvalget inkluderer 203 norske små og mellomstore bedrifter (SMEs) som driver eksportvirksomhet. To hovedhypoteser ble undersøkt: At veksten til vinnerne er karakteristisk og relatert til selskapets internasjonalisering (grad av Born Globalness), og at ledelsens tankesett former flere avgjørende trekk ved vinnerne som igjen er direkte relatert til deres prestasjon. Disse ble videre utdypet gjennom henholdsvis 4 og 3 underhypoteser som var direkte testbare med datasettet. Deskriptiv statistikk, korrelasjonsstatistikk, samt ANOVA og regresjonsanalyse ble brukt som analysemetoder.

Resultatene viser at Vinnerne er svært internasjonale og demonstrerer en enestående og vedvarende vekst. En betydelig andel av firmaene kan karakteriseres som 'born-to-run'. Disse ser ut til å være forløpere til firma i superkategorien Gaseller. Vinnerne har en særegen tankegang som ser ut til å være en avgjørende suksessfaktor. Denne tankegangen er retningsgivende for handlinger som driver deres prestasjon. Vinnerne har dessuten en eksepsjonell evne til å tilegne seg og internalisere kunnskap, og raskt omsette dette til forbedringer i egen drift og organisasjon. Tilknytning til ressurssterke selskaper er et vanlig kjennetegn ved vinnerne som de ser ut til å hente mye inspirasjon, kunnskap og støtte fra.

For å konkludere: det er faktisk mulig å identifisere flere felles suksessfaktorer som er drivere av vinnernes prestasjoner og skiller dem fra mengden. Suksessfaktorene kan finnes ved ren finansiell analyse og ved inspeksjon av menneskelig kapital, som henger sammen. Videre antyder dette at det er mulig å forutsi hvilke firmaer som har potensial til å bli vinnere. Mer kunnskap om temaet er imidlertid av stor samfunnsøkonomisk verdi. Nye studier oppmuntres for å undersøke flere økonomiske indikatorer som er karakteristiske for utviklingen av vinnerne. Videre forskning på vinnernes tankesett bidrar også til en mer fullstendig forståelse av hvordan flere vinnere kan skapes, identifiseres, og legges til rette for.

Preface

This Master's Thesis concludes my degree as a Master of Science at the Norwegian University of Science and Technology, Trondheim. It is written in spring 2022 in the subject *TIØ4912 Strategy, Innovation, and International Business Development*. It follows a state-of-the-art literature review on the same topic, written in fall 2021.
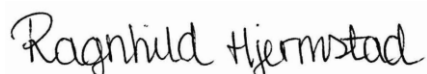
When I started working on my project thesis in August 2021, Norway had recently got its first two Unicorns (on the same day, nonetheless). As I finish this thesis, a year later, the number has already increased to five. The number of new entrepreneurial ventures has never been higher, a trend that was reinforced by a global 'start up-boom' during the COVID-19 pandemic. Meanwhile, the attempt to recover from the economic ramifications of the pandemic and the simultaneous war in Ukraine has caused an economic downturn for the Norwegian and global economies. This makes knowledge on what it takes to succeed in entrepreneurship more relevant than ever, particularly on a global scale.

Throughout the work on this study, I had the investors and strategic decision makers in mind. My goal was, through assessment of the findings, to provide some specific guidelines for practical application. I hope my master's and project theses together provide value to readers interested in understanding, achieving, and enabling high performance for a group of firms with great socio-economic value and revenue potential. This includes researchers, entrepreneurs, investors, and policy makers. In particular, I hope my colleagues at Investinor will find it interesting and educational.

I would like to thank my counselor, Professor Øystein Moen, for his guidance throughout the process. Our discussions as well as his insight and feedback have been valuable contributions. I would also like to thank my American family for an amazing semester in the US. A special thanks to all my furry friends for outstanding support. Finally, I would like to direct a special thanks to my mother, Professor Marianne Jensen Hjermstad, for sharing her valuable research knowledge and general support while conducting my first empirical research project. It has been it has been an educational and interesting project.

I hope you enjoy the read!

Oslo, June 10th 2022

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1 Introduction

Over the last two decades, there has been a surge of new start-ups. Recently, this trend has been further reinforced by a world-wide 'start-up boom' during the COVID-19 pandemic (Forbes, 2021). This development is somewhat surprising compared to previous periods of recession. Layoffs and emergence of new markets together creating both need and opportunity, have been pointed to as drivers (Casselman, 2021). The same trends have been observed in Norway (SSB, 2022b). More people are venturing out on the journey of entrepreneurship, albeit with varying degrees of success. Among these are companies with tremendous success, best exemplified by high-growth 'superfirm'-categories of Gazelles and Unicorns. While this likely is a dream aspiration for many novel entrepreneurs, the reality is that only about 10% of new ventures survive long-term, and of these only a fraction become success stories (Startup Genome, 2019). Furthermore, it is well documented that a smaller group of high-growth companies are the main contributors to economic growth and new job creation, making them particularly important for employment rates, the economy, and the social welfare-level (Eurofound, 2012, Henrekson and Johansson, 2010, Birch, 1987). These are mainly small and young innovative companies that immediately internationalize (Eurofound, 2012, Moen, 1999), so-called 'Born Global firms' (BGs).

In the 1990's, the ruling stage-wise model of internationalization (Johanson and Vahlne, 1977) was challenged by the emergence of firms that from outset successfully competed against large, established players in a global market (Knight and Cavusgil, 1996, Oviatt et al., 1995, Rennie, 1993). These 'Born Globals' are small entrepreneurial firms that are international and rapidly growing from inception (Knight and Cavusgil, 2004). The phenomenon of BGs, by some called 'International New Ventures' (INVs) (McDougall et al., 1994, WTO, 2016), has been subject to substantial research over the last 30 years. It is estimated that about 20% of young enterprises in Europe (Eurofound, 2012) and about 50% of young exporters in the Nordics are BGs (Moen, 2002), and the population of BGs is increasing. These firms are particularly interesting because of their crucial role for economic growth. An extremely competitive environment fuels both the highest growth potential, thereby constituting a breeding ground for 'superfirms', and high failure rates (Moen and Criado, 2018).

The social and economic value of these firms raises an interesting question: Is it possible to predict which ventures will become top-performers? Previous studies within international business have investigated the success factors related to persistent high growth, with particular emphasis on the venture's early-stage development. Within the field of international entrepreneurship, the characteristics of entrepreneurs have been thoroughly researched and connected to the degree of success. In the cross-section of these fields, there has been considerable research on BGs. However, as previous research has generally been phenomenon-oriented, attention towards describing the heterogeneity of the BG-population has been minimal. Consequently, minimal research has been conducted on what drives the top-performers to explain why they succeed and in which aspects they differ from the mid- and low-performing high growth-firms. BGs are found within all industries (Eurofound, 2012, Knight and Cavusgil, 2004) and display broad variation in their internationalization pattern in terms of speed and intensity (Choquette et al., 2017, Kuivalainen et al., 2007). Combined with the sheer number of firms in the category, this indicates large internal variations. Thus, knowledge on common characteristics of the top-performing BGs and in which aspects they deviate from firms with less or no success, is therefore a valuable and highly relevant contribution to the field.

An exporting Small-Medium Enterprise (SME) share a selection of the fundamental criteria of BGs, but without requiring the key dimension of rapid growth. Micro-firms and SMEs make up a significant share of the economy, constituting over 95 % of all enterprises in OECD countries (WTO, 2016). Literature on internationalizing SMEs cluster firms into different groups to describe their path of internationalization (Gabrielsson et al., 2008, Larimo, 2006). Being a BG is one of these, and a large share of exporting SMEs fall into this cluster. In small open economies like the Nordics, where ventures must internationalize from early on to achieve significant growth and stay competitive (Gabrielsson and Kirpalani, 2012), the prevalence of BGs is significantly higher than elsewhere (Eurofound, 2012, Lehmann and Schlange, 2004, Moen and Servais, 2002). Additionally, a small size often forces the need of an innovative product, and limited resources make it sensible to aim at a niche rather than a more general market approach (Aspelund and Moen, 2001). These are traits that characterize BGs and enable them to handle rapid growth and compete internationally from an early age. With SMEs constituting up to 90 percent of all firms, and many drawing more than half their revenue from exporting activities (OECD, 2018, WTO, 2016), a high share of SMEs qualify as BGs. E.g., the share of young exporters qualifying as BGs has been found to be above 50% in both Norway (Moen, 2002) and Denmark (Knight et al., 2004). Thus, the leap from the average SME to a BG company is rather small, and supposedly even smaller in small open economies like Norway.

In fall 2020, I conducted a state-of-the-art literature review investigating the characteristics of BGs, with particular focus on the top-performers. These were named 'the Winners' (Hjermstad, 2021). The review synthesized the current knowledge on this group of firms with high socio-economic value, focusing on success factors for the growth and performance high-growth firms (HGFs) and BGs, and the related entrepreneurial characteristics. This resulted in three propositions describing the firm's growth pattern, the decisive early-phase developments, and the long-term dynamic between the entrepreneur and management. A fourth proposition discussed the element of luck vs skill for venture success. Building the Project Thesis, the present study will examine which success factors drive the performance of the Winners from a quantitative approach.

In this empirical study, the same research topic will be approached from the opposite direction. Instead of looking at a narrow selection of firms that qualify as Norwegian BGs, a broader dataset of Norwegian exporting SMEs is investigated to understand where the top-performers stand out. Following the argumentation on the proximity of exporting SMEs and BGs in the Nordics, these top-performers are expected to be top BGs. A statistical analysis on a dataset that combines a management questionnaire with the firms' previous and subsequent financial performance, allows identification of crucial success factors for the top-performers. To the best of my knowledge, previous studies have investigated characteristics of the entrepreneur and the venture's growth and performance separately. As such, this study allows unique insight into the connection between the two factors that I perceive as related, thereby filling a significant research gap regarding knowledge on what drives the top-performers.

The present study aims to answer the following research question:

Is it possible to predict who will become Winners based on a set of shared success factors?

The purpose of this study is to examine which traits that drive the performance of 'the Winners'. Knowledge on what characterizes 'the Winners' enables their identification and is valuable for understanding, achieving, and enabling high performance. Such insight is of great value to entrepreneurs and managers, investors, politicians, and policy makers (e.g., EU and OECD), who all aim to cultivate success. The objective of the study is to derive knowledge that is applicable so that by looking at the past growth and profitability of a venture, one can predict its subsequent development and make necessary adjustments to shift its current trajectory.

In the subsequent chapters, an overall presentation of the theoretical background is given, followed by a more detailed derivation of the hypotheses subject to the research. As a final part of the groundwork, the growth measures applied in the study are built and tested for robustness. Next, the methodology of the study is presented before the hypotheses are tested on the dataset using statistical analysis. This is accompanied by an elaborate discussion. Finally, a conclusion is presented, along with a reflection on limitations and implications for further research.

2 Theoretical background

In order to identify Winners, knowledge on what drives their performance is necessary. Stemming from a large and heterogeneous group of firms, it is reasonable to expect some variety in the characteristics among the Winners. Meanwhile, they do share certain characteristics definitional to BGs. The foundation of this study is the idea that they also share certain additional characteristics that drive their performance directly, indirectly, or through synergy effects. As for other firms, the Winners' performances are shaped by a number of factors, both internal and external. While external factors seemingly are important for short-term success, internal factors are decisive for the long-term performance (Efrat and Shoham, 2012). Thus, the Winners may share a set of internal success factors that explain their superior long-term performance. As such, these can be used to define Winners. It is possible that lower performing BGs also exhibit a selection of such performance drivers, but in order to prescribe the elevated performance to the identified characteristics requires some exclusivity. Effectively this means the Winners must possess more complete sets of said characteristics, possibly benefiting from synergies and transverse effects, to explain the performance gap. To identify such characteristics, an inspection of the existing knowledge and disputes within relevant research areas is a good place to start.

The aim of this chapter is to provide a general introduction to prevailing theories within the research fields of international entrepreneurship and international business, with a particular focus on Born Globals. Defining aspects of this type of firm are rapid growth and internationalization. Naturally, these have been fundamental issues within entrepreneurship research. Another theme that has gained increasing amount of attention, is the role of the entrepreneur's characteristics in venture success. Literature on these three issues will be presented in this chapter. Additionally, a compilation of the literature on growth measurement is presented. Growth and performance measurement are key to assess which firms qualify as Winners. As such, appropriate measurement of growth is a fundamental task for the subsequent analysis. Before diving into the literature, the definitions three key concepts are offered, namely Born Globals, High-Growth Firms, and exporting Small-Medium Enterprises.

The chapter is in part a synthetization of the theories presented in my Project Thesis, Hjermstad (2021), on the same topic. This was conducted as a state-of-the-art literature review and is to be considered as a preparatory work for the present paper.

2.1 Defining relevant concepts

Three concepts are of particular relevance to this study: exporting SMEs, HGFs, and BGs. Additionally, a definition of success is fundamental for the selection of the Winners. Defining aspects of exporting SMEs and BGs were briefly presented in the introduction. A more comprehensive definition of each concept will be presented in this chapter. The definitions of HGFs, BGs, and success presented in this chapter build directly on the work from my Project Thesis (Hjermstad, 2021), summarizing more in-depth discussions on the topics.

Exporting SMEs

An exporting Small-Medium Enterprise (SME) is a small or medium-sized firms that engages in export activities. As suggested by the name, SMEs are defined by size measured in number of employees. Often financial thresholds are added, e.g. requirements for total assets, annual sales or balance sheet total. There is no generally accepted definition of SME, causing some variation in the applied thresholds used to define them (Lu and Beamish, 2001). The World Bank apply a definition with 50-300 employees (Independent Evaluation Group, 2008), while SMEs according to the EU-standard are slightly smaller with 10-250 employees (EU, n.a.). In US, where firms in general are larger, firms with up to 500 employees are considered SMEs (USITC, 2010). Firms with less than the lower threshold of employees are labeled Micro firms.

In the present study, the definition of Norwegian exporting SMEs were inherited from the criteria applied in the 2014-survey basis to the dataset. These were all Norwegian firms with 4-250 employees and registered export activity in the *Kompass* database from which they were retrieved.

On a worldwide basis, exporting SMEs constitute a 90% of all businesses and more than 50% of employment (The World Bank, n.a.). These numbers are even larger in small open economies (SMOPECs), such as the Nordics. As much as 99% of businesses in the EU are SMEs, and many of these exporters (EU, n.a.). Thus, in today's globalized economy, internationally operating SMEs play a crucial role in economic development – particularly in SMOPECs (Azari et al., 2017).

High-Growth Firms (HGFs)

The literature generally uses one of the following two definitions of HGFs (Coad et al., 2014a) (an excerpt from Hjermstad (2021)):

(1) *The absolute definition:*
HGFs are all firms growing more than a given threshold for an intensive, observable period. E.g., all firms growing at least 10% per year for three consecutive years. Eurostat-OECD's (2007) absolute definition is often applied: HGFs are enterprises that has annual growth (measured in employment or turnover) above 20% over a 3-year period. In addition, the firms are required to initially have 10 or more employees or annual revenue of minimum four times national per capita income.

(2) *The relative definition:*
HGFs constitute some percentage of the highest growing companies. E.g., the 10% highest growing firms. According to the World Bank (Grover Goswami et al., 2019), this is often measured as some top percentile of the Birch index (often the 90th percentile) but can also use employment or turnover as growth measures.

In practice, an increasing number of scholars apply the Eurostat-OECD definition to identify HGFs (Coad et al., 2014a). As do European statistical offices who offer statistics on the population of HGFs. Meanwhile, the Birch Index is the most applied growth measure in HGF-studies (Coad et al., 2014a).

For the present study, the classification HGFs is not directly relevant as the goal is to identify Winners – a considerably stricter classification. Meanwhile, it is important to note that the class of BGs is a sub-category of HGFs. In other words, a BG is a HGF that fulfills certain additional characteristics related to growth and internationalization. By extension, this means that the Winners constitute a selection of the best HGFs.

Born Global Firms (BGs)

A Born Global firm is defined as a business *"that, from or near their founding, seek superior international business performance from the application of knowledge- based resources to a scale of outputs in multiple countries"* (Knight and Cavusgil, 2004). In other words, these are small entrepreneurial firms that from their founding are rapidly growing and display an international orientation in terms of market view, goals and resource allocation. They often possess a technological edge that makes them competitive despite their modest size (Moen and Servais, 2002). The concepts of 'International New Ventures' (McDougall et al., 1994) and Born Global firms are used somewhat interchangeably in research within marketing, strategy, and entrepreneurship to describe this phenomenon. Terms like 'Instant Internationals' (Preece et al., 1999) and 'Global Start-ups' (Oviatt et al., 1995) have also been used. The present paper will apply the term Born Global to describe these firms.

The previous literature displays some variation in the numerical criteria used to define BGs, both in terms of speed and scope of internationalization (see *Appedix A1: Born Global definitions* for an overview of applied definitions). Regarding speed of internationalization, entrepreneurship literature has generally set the criterion to 6 years (Rasmussen et al., 2010). Meanwhile, research on BGs has usually been stricter, requiring export activities to start 'within 3 years after inception' (Gabrielsson et al., 2008, Rennie, 1993, Knight and Cavusgil, 1996). As for the scope of the international efforts, there the minimum criterion for share of sales in foreign markets ranges from 25% to 80%. In practice, many scholars apply a minimum export rate of 25%, as suggested by Knight and Cavusgil (1996) (Rasmussen et al., 2010).

As they share a section of definitional criteria, exporting SME may be considered a looser classification of BGs. To distinguishing BGs behavior and development from other SMEs, Gabrielsson et al. (2008) refined the concept further by characterizing BGs as SMEs that possess potential for accelerated internationalization with a global market vision from early on. Many SMEs are both international and entrepreneurial, but may experience a more traditional internationalization process at a steadier and slower pace in contrast to the accelerated pace of BGs. Meanwhile, Moen and Criado (2018) state that *"It is expected that many of the firms with the highest growth potential will be Born Globals.".* Combined with a small home market driving early internationalization, a large share of Norwegian exporting SMEs are expected to qualify as BGs. This allows the present study's strategy of approaching the investigation of BGs through a study on exporting SMEs.

6

Success

The thesaurus' definition of success is accomplishing an aim or purpose (Oxford Languages, 2021). This aim and thereby the perception of success within entrepreneurship differs from traditional business, where continued survival is adequate to be considered a success (Brüderl et al., 1992, Cooper et al., 1988). While some entrepreneurial firms aim for continued growth and revenue, acquisition is the ultimate goal for many founding entrepreneurs as a means to harvest value, often within a given timeframe (Wennberg et al., 2010, Gompers et al., 2010). In context of research on groups of high-performing firms, such as HGFs, BGs, or 'the Winners', a traditional definition of success is far too broad and renders too many companies as successful. Instead, metrics that allow evaluating degrees of success are more applicable. This is especially true when trying to compare successful firms to the even more successful.

In a business context, it is natural to connect success to the firm's performance. This allows to regard high performance as success, or at least a prerequisite for success. For the purpose of this paper, the two concepts are considered the same; the Winners are defined as the top-performers of a group of firms with high socio-economic value and profitability (Moen and Criado, 2018, Choquette et al., 2017, Eurofound, 2012). Moreover, this group of high-growth high-performance firms likely constitute a breeding ground for superfirms (Moen and Criado, 2018, Henrekson and Johansson, 2010), which arguably are the most successful firms on the world.

Growth and profitability are key performance measures (Rauch et al., 2009, Chandler and Hanks, 1993). While profit is a basic financial metric of success, growth is key to long-term success. Meanwhile, short-term profits must often be sacrificed for investments in long-term growth (Rauch et al., 2009). Thus, high growth is a key imperative of successful business. Importantly, high growth alone is not adequate to achieve success. Research suggests that successful firms do not 'grow profitable' but rather possess high profitability that can be sustained throughout the expansion (Davidsson et al., 2009). Therefore, considering both growth and profitability provides a clearer picture of the venture's development and performance.

This coincides with the practice of scholars. According to Kerr et al. (2018) and Davidsson et al. (2009), firm growth is commonly used as a measure of success. Also successful entrepreneurs define venture success as sales growth and profitability (Crane and Sohl, 2004). Based on this, success can be characterized as high growth and the ability sustain both growth and profitability over time. This allows measuring success in terms of growth, with sales and employment as particularly relevant indicators (Davidsson et al., 2009, Rauch et al., 2009, Chandler and Hanks, 1993).

2.2 Growth measurement

Literature on HGFs has generally focused on how many and how much firms grow, rather than how and why these firms achieve growth (Brown et al., 2017). Consequently, how growth is measured varies greatly within the field (Gupta et al., 2013). Previous research on the methodology shows that different measures yield different results and that the correlations between the different measures are low (Erhardt, 2021), making the use of alternative formulas an important source of inconsistencies (Shepherd and Wiklund, 2009, Delmar et al., 2003). This suggests that it may be wise to look at more than one growth measure.

This is supported by Delmar et al. (2003), who argue that firm growth is fundamentally multidimensional, which means that looking at a single growth measure only informs about one form of organizational growth. Their explanation is that different growth measures reflect different aspects of the firm. At the same time, different growth measures present different challenges. Taking sales as an example, which is one of the most used indicators (Delmar et al., 2003), it reflects the demand, is easily accessible and comparable across industries, but is also sensitive to inflation and currency exchange rates. Thus, using multiple growth measures to assess firm growth may provide a more accurate picture.

Building a growth measure

There are many aspects to consider when choosing how to measure growth, and these affect the result (Erhardt, 2021). Composing a growth measure includes choice of indicator, formula, period, and mode of growth. The indicator can be qualitative or quantitative. While the quantitative indicators are usually objective, typically financial data or market share, qualitative indicators such as market position, product quality or customer goodwill (Gupta et al., 2013) to a larger degree depend on subjective evaluations. Chandler and Hanks (1993) criticized the use of subjective measures, arguing that the entrepreneurs' expectations and comparison to competitors affect the measure just as much as the objective performance, thereby affecting its validity. Additionally, quantitative indicators are often more easily accessible and standardized – two important aspects for researchers with large and/or international samples. Research on growth measurement shows that the most frequently used indicators in high-growth literature are sales and employment, and that multiple indicators are often applied (Daunfeldt et al., 2014, Delmar, 1997).

As for the formula for calculating the growth, the choice between absolute or relative measurement has large impact on the result. E.g., high percentagewise growth is considerably easier to achieve for a very small firm than for a larger firm, while the opposite is true for the absolute value. Some scholars choose a logarithmic scale to reduce this bias towards firm size (Coad et al., 2014a). When stating a threshold to selecting HGFs, researchers have found that the choice between measuring absolute or relative growth is the primary determinant of which firms make the cut into the final sample (Daunfeldt et al., 2014, Almus, 2002). A solution to this is the Birch Index, a frequently used calculation method (Schreyer, 2000). It multiplies absolute and relative change in the selected indicator over the chosen period, thereby reducing the impact of firm size on the growth indicator (Coad et al., 2014a). To study top-performers, the application of the index may be either relative, by taking some top percentile, or absolute, by choosing some lower threshold for inclusion.

As most HGFs experience rapid growth in bursts (Brown et al., 2017), choosing an appropriate period length to identify persistent HGFs can be challenging. To correct for one-off growth bursts, most studies apply a time horizon of a few years. Empirical studies on firm growth have typically assessed

periods with duration from 1 to 5 years (Delmar and Wiklund, 2008). Most HGF-studies use 3- or 4-year periods (Coad et al., 2014a). However, it has been found that this 'smoothing strategy' does not eliminate the problem that most HGFs are one-shot growers (particularly when using relative measurement) (Daunfeldt and Halvarsson, 2015, Hölzl, 2013). This is an issue of importance that has yet to be resolved (Coad et al., 2014a).

Finally, the considered mode of growth can include total, organic, or inorganic (acquired) growth. On this topic, scholars have divided opinions. McKelvie and Wiklund (2010) argue that research on firm growth should focus on how growth is achieved. Meanwhile, Spearot (2012) argues that a firm's choice of internal and external growth is guided by similar decisions, thus rendering how the growth is achieved as insignificant. Organic growth seemingly has a larger effect on net employment than acquired growth, as the latter mainly involves employee reallocation rather than job creation (Henrekson and Johansson, 2010). This suggests that studies interested in economic impact and job creation potential should focus on organic growth. However, Henrekson and Johansson (2010) also highlight acquisition as an important strategic move for a more efficient resource allocation, thus crucial for productivity growth. They find inorganic growth, through acquisition of less efficient competitors, to be a normal strategic move of Gazelles. In practice, most studies use total growth. There are two governing reasons for this: the first being that these are easily accessible numbers, and the second that lack of data on M&As often renders little choice (Coad et al., 2014a).

Growth and performance

Performance measurement is a particularly relevant task for entrepreneurs and investors, both of whom have interest in keeping a close watch on the venture's development. Firm growth is commonly used to measure of success (Kerr et al., 2018, Davidsson et al., 2009). Measuring performance in terms om growth and profitability (usually turnover) is consistent with theories and practice within the field of entrepreneurship (Davidsson et al., 2009, Delmar et al., 2003, Chandler and Hanks, 1993). Also entrepreneurs point to sales growth and profitability as definitional for venture success (Crane and Sohl, 2004). Thus, growth measurement is a central aspect of performance assessment, which may be considered to have a broader area of application and interest.

One could argue that high growth and profitability are dependent variables, with profitability being a consequence of high growth, but scholars emphasize that high growth alone is not adequate to achieve success. According to Davidsson et al. (2009), successful firms do not 'grow profitable' but rather possess high profitability that can be sustained throughout the expansion. This is supported by the seminal work of Penrose (1959), who views profits as a necessary condition of expansion and urges managers to strive for a balance between growth and profitability – 'profitable growth'. Handling and sustaining rapid growth over time is a demanding task for the management team (Dillen et al., 2019). Based on this, success should be regarded as high growth and the ability sustain both growth and profitability over time.

Efrat and Shoham (2012) claim that the ability to achieve and sustain superior performance depends on the organization's ability to adapt its capabilities to its ever-changing environment, which often requires making investments with far-off dividends. As highlighted by Rauch et al. (2009), sacrificing short-term profits for investments in long-term growth is therefore a common and often necessary strategic move. This is likely especially true for young startups like BGs, who have more limited resources and a lower profit base in the early-phase. Many do not grow profitable for a few years. Instead, they use the time to invest in building a solid organization that is equipped to handle rapid

growth. What this entails will be elaborated on in the subsequent section presenting theory on internationalization (3.2). In terms of performance assessment, this implies that considering both growth and profitability provides additional insight compared to either measure alone. This is likely useful to get a clearer picture as basis for evaluation of the past operations and future strategic plans. Using growth as a key metric of performance provides valuable insight into long-term strategies, while focus on profitability secures short-term operation and is evidence of how previous long-term strategies has played out.

2.3 The concept of the Winners

As stated by Hjermstad (2021), both HGFs and BGs have been subject to substantial research. Also 'international SMEs' or 'exporting SMEs', which closely resemble BGs, have gathered some attention by scholars. Meanwhile, the 'superfirms'-terms Gazelle and Unicorn have been subject to a smaller selection of literature but received greater public interest than the beforementioned categories. This is largely thanks to various nominations focusing on young innovative high-growth companies, e.g. Fortune's '*100 Fastest-Growing Companies*', the Forbes' '*Most Innovative Growth Companies*'-list, and the Norwegian equivalent in Dagens Næringsliv's *Gasellekåring*. However, the difference between the performance and growth of the average rapid growth firm and the superfirms is substantial. The concept of 'The Winners' was created with means to bridge this significant gap by describing the top-performing BGs. Figure 1 illustrates how the concepts relate to one another.

With both rapid growth and international activities being defining characteristics of both sides of the gap, these concepts are fundamental to understand the development of the firms and subsequently point to the drivers of their success.

Figure 1 – Connecting 'the Winners' to existing concepts in literature
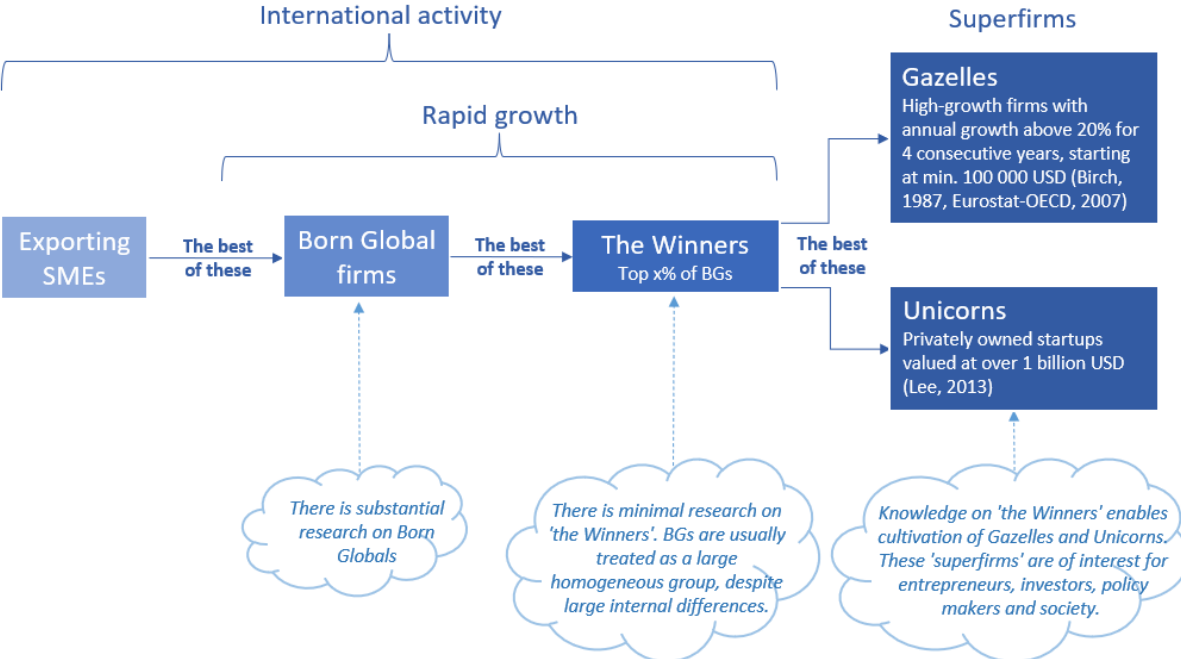
Drawing existing literature on growth, high growth, and success, both in general terms and in the context of BGs, a definition of 'the Winners' was derived by Hjermstad (2021). This approach ensured arriving on a definition that concurs both with the leading theories and the practiced definitions of high growth and success. Based on this discussion, the following criteria were suggested to define the Winners of a given dataset:

To define BGs, of which the Winners are a sub-group, it was suggested to follow traditional criteria. This meant setting the speed of internationalization to within 3 years after inception (Knight and Cavusgil, 2004), and the extent of internationalization to 25 % (Eurofound, 2012, Rasmussen et al., 2010, Knight and Cavusgil, 2004). Subsequently, the Winners would be defined as some top percentage of this selection, suggestively the top 1%, 5% and 10% (Coad et al., 2014b). The chosen threshold for inclusion should balance an adequate sample size for validity and homogeneity for relevance (Grover Goswami et al., 2019, Ughetto, 2016, Coad et al., 2014a). Furthermore, the Birch index was suggested as a good indicator based on it reflecting socio-economic value and the practice of previous scholars. Finally, it was encouraged to consider whether applying geographical considerations would be appropriate (Grover Goswami et al., 2019, Brown et al., 2017, Knight et al., 2004). This is particularly relevant for studies with large international samples, but not for a sample of only Norwegian firms.

As argued in 2.1, exporting SMEs may be considered a looser definition of BGs. Consequently, there is no need to define BGs, leaving the threshold for inclusion as the only relevant of criteria above to define the Winners in the present study. These will simply be the top x % performers of the sample. Meanwhile, measuring their growth and performance is a key task to make it possible to select the top performers. Based on literature on growth measurement, Hjermstad (2021) proposed suggestions on how to construct appropriate growth measures to serve as basis for this selection. These include choice of indicator, formula, period of measurement, and mode of growth. Due to the fundamental role of appropriate growth measurement for the results of the study, this has been devoted a separate chapter: Chapter 4 – *Measuring the growth and performance of the firms*. To ensure that the chosen growth measures are representable and consistent, multiple measures are built and tested in this chapter before making an applicable selection.

Following the derivation of a definition for the Winners by Hjermstad (2021), the concept was discussed in light of an extensive literature review with to the objective to uncover key characteristics and success factors of this group of high-performing firms. Judging from the evidence presented in the literature review, the following was stated: The Winners are expected to exhibit rapid growth and internationalization early on. Furthermore, their success is defined as the ability to sustain both high growth and profitability over time. The ability to handle such rapid growth and internationalization is largely dependent on the personal characteristics of the entrepreneurs (Hagen and Zucchella, 2014, Oviatt and McDougall, 2005). Therefore, the theoretical focus of chapter 3, in which the hypotheses for the study will be derived, is on the key success factors relating to the growth, internationalization and entrepreneurial characteristics of 'the Winners', as derived by Hjermstad (2021).

3 Deriving the hypotheses

Given the substantial profitability and socio-economic importance of the top-performers of BGs, knowledge on what factors excel their growth and performance is of broad interest. The research question of this paper is therefore whether the Winners can be distinguished from other firms based on a set of shared success factors, and if so from how early on this is possible.

This is valuable information to investors, who aim to recognize such potential and cultivate it in a proper way. Furthermore, the success factor related to superior performance has obvious value to entrepreneurs wanting to achieve success, but also to larger regulatory instances responsible for creating regulations and structures to maximize the benefits on a socio-economic level.

Meanwhile, there are several examples of competing firms that, from the outside, appear to have nearly identical operations, but still see largely different results. In search of an explanation, some may point to coincidences and luck. However, it is a fundamental standpoint basis to this paper that this is not the case. If 'luck' plays a part, this is believed to be much smaller than the void represented by the knowledge gap on success factors for high-growth high-profit firms.

A recurring observation within in sports, business and investing alike is that the best performers seemingly have more luck than others (Mauboussin, 2013). A timely question is therefore whether 'luck' actually is a suitable term. Although some mention excellent timing, which may partly be luck, few entrepreneurs attribute their success to luck (Crane and Sohl, 2004, Begley and Boyd, 1987). Instead, high internal locus of control – the perception that the future is controlled by one's own actions and free from luck – is an entrepreneurial trait (Caliendo and Kritikos, 2008, Begley and Boyd, 1987). From this point of view, the sources of what some might consider luck are in fact influenceable external factors.

In the world of sports, being a '24-hour athlete' is an exact embodiment of a mindset that entails striving for optimization of performance with every action. A central aspect is a continual search for knowledge and inspiration on how to improve and increase performance. This is often more simply described as a 'hunger' for success – a known entrepreneurial trait that investors search for in potential investments (Khan, 1986). Perhaps does the corresponding mindset fall naturally into the entrepreneurial orientation of the very best entrepreneurs. Aspects of this mentality has been research by previous scholars within the fields of entrepreneurship, international business, and psychology. A number of studies have investigated the role of entrepreneurial characteristics, ambitions, an international and entrepreneurial orientation, and the relation to performance. However, the various aspects have only been pieced together in bits by previous studies.

While this is an interesting theoretical concept, it is challenging to test in a practical manner. Therefore, the present study is designed in two parts resembling an investment process, which often contains an objective financial analysis and a meeting with the investment object including a more subjective evaluation. The first part is an objective approach using financial data. This entails investigating some quantifiable financial metrics by which the best can be separated from other firms, regardless of the mechanisms behind the development. The second part is to inspect the mindset of the entrepreneur and management to look for drivers that suggest successful performance. This is arguably more subjective but based on the discussion above possibly even more decisive. After all, many ventures fail only to see their idea be successfully executed by someone else. Depending on the venture's stage of development, the availability of objective data may be a very limited. Furthermore, it is possible that neither approach alone is sufficient for sifting out good investments, but pairing the two likely provides relevant information for a more solid decision basis.

To answer the research question, the following two hypotheses are formulated:

HYPOTHESIS 1: The growth of the Winners is characteristic and related to the internationalization (degree of Born Globalness).

HYPOTHESIS 2: The mindset of the leadership shapes several crucial features of the Winners that directly relate to their performance.

Several studies point to the role of the entrepreneur and management as a key source of the ability to sustain high-growth (Dillen et al., 2019, Gompers et al., 2010, Penrose, 1959) and their mindset as detrimental to the venture's success (Moen et al., 2015, Hagen and Zucchella, 2014). Meanwhile, few studies have examined the relation between the mindset of the entrepreneur and the long-term growth and performance of their ventures. In the literature review on HGFs by Wennberg (2013), including 135 studies from 1985 to 2013, only 30 studies had data on the founding entrepreneurs. As such, this paper has a unique dataset as it combines top-management survey and financials both previous to and following the survey.

When conducting a study utilizing hypotheses, it is desirable that these are directly testable (Wilson and Joye, 2017). Therefore, a design has been chosen where each of the hypotheses above are elaborated through a few related sub-hypotheses that are directly testable with the dataset. Four are related to the growth of the Winners, and three to the mindset of their leadership. In the following sub-chapters, the seven sub-hypotheses will be derived sequentially. Each hypothesis is derived by gathering relevant threads from different streams of entrepreneurship research. The theory builds directly on the state-of-the-art literature review "*Learning from the Winners*" by Hjermstad (2021).

3.1 Growth

Organizational growth is a driver of economic growth and job creation. This explains why HGFs and BGs hold a position of particular economic and societal importance. While the tone-setting work of Gibrat (1931) claimed that the expected growth rate of a firm to be independent of its size, this has later been disproven (Daunfeldt and Elert, 2013). Instead, the focus shifted to smaller firms as they are found most important for job creation and economic growth and demonstrate the greatest growth potential (Grover Goswami et al., 2019). Substantial research on HGFs elaborate on the drivers and patterns of their growth, and provide illustrations of the economic impact of HGFs through concrete figures: A study by the World Bank (Grover Goswami et al., 2019) found that HGFs accounted for 80% of all new sales and jobs in the manufacturing and services, while constituting only 20% of the firms. In nearly all cases, both employment and output levels would have declined without the contribution of HGFs, solidifying the significance of these firms as a 'dynamic core of an economy' (Grover Goswami et al., 2019).

Meanwhile, this identified impact largely stems from a smaller share of HGFs, most of which are suggested to be BGs (Choquette et al., 2017, Eurofound, 2012, Henrekson and Johansson, 2010). The population of BGs is a sub-group of HGFs that possesses certain additional characteristics. Both BGs (Eurofound, 2012) and Gazelles (Henrekson and Johansson, 2010) are proven to be particularly important for economic growth and job creation. With 'The Winners' constituting the most successful of the BGs, this group of high-growth-high-performers also make up the most important firms in terms of economic importance.

In a recent study, Ferguson et al. (2021) claim that the importance of BGs for job creation and economic growth is hugely exaggerated compared to firms following a more gradual internationalization process. This implicates that policymakers' encouragement of BG-formation will not yield the expected socio-economic benefit. However, the methodology of their study entails some questionable exclusions that clearly affect the validity of the findings, as thoroughly discussed by Hjermstad (2021). Prior to these adjustments, and when applying the approach of previous studies, the results are statistically significant and in agreement with previous research confirming the importance of BGs (Moen and Criado, 2018, Choquette et al., 2017, Eurofound, 2012). On the flip side, the study clearly illustrates two interesting things: First, the economic contribution of a small group of top-performers is solidified by the fact that removing these firms result in a disappointing performance for the remaining sample. Second, while this is clearly not the case for the top-performing BGs, a gradual internationalization may be equally successful for the mid- and low-performing BGs. Thus, it may be a reasonable claim that the mid- and low-performing BGs are not special compared to other firms.

Growth Persistence

The ability to sustain high growth over time is seemingly a trait that separates the best from the rest. Meanwhile, most research suggests that HGFs rarely manage to sustain their high growth (Daunfeldt and Halvarsson, 2015, Nicholls-Nixon, 2005). The belief that the growth of HGFs is a steady linear process is a misconception that is engrained in many policies (Brown et al., 2017). Instead, most HGFs display a growth pattern that is erratic, unpredictable, sporadic and often of limited duration, with bursts of rapid growth between periods of minimal growth (Brown et al., 2017, Coad, 2009). Most firms seemingly need breaks in between bursts of growth to gather resources and prepare for the next high-growth episode (Delmar et al., 2003). Daunfeldt and Halvarsson (2015) found that most

HGFs are 'one-hit wonders', with a miniscule likelihood of still being a HGF in 3 years. While also confirming this result, Hölzl (2013) found the persistence of high-growth to depend on choice of growth measurement – an important contribution. This is supported by Erhardt (2021). Brown et al. (2017) points out that high growth is a state, not a characteristic that HGFs possess, and that the population of HGFs is constantly fluctuating. An implication is that HGFs may be difficult to target in advance of their high-growth period, when assessing based on solid numbers. This heightens the relevance of an additional assessment based on soft factors, as targeted in the survey used in this study. Which aspects to pay attention to is a central research question for this thesis.

On the other hand, several studies have found that some HGFs do display persistent high-growth. This small share of HGFs constitutes those most important to the economy and job creation (Henrekson and Johansson, 2010, Eurofound, 2012). A significant number of these are expected to also be BGs, and precursors to Gazelles (Moen and Criado, 2018, Henrekson and Johansson, 2010). When it comes to these top-performers, the notion that HGFs are 'one-hit wonders' in terms of growth (Daunfeldt and Halvarsson, 2015) has been dismissed by several scholars (Moen et al., 2015, Hagen and Zucchella, 2014, Delmar et al., 2003). Hagen and Zucchella (2014) describe the growth as successional for fast-growing firms. Where other firms need a break in between bursts of growth to gather resources and prepare for the next high-growth episode (Delmar et al., 2003), the best manage to do so in parallel. These firms are seemingly 'born to run' – meaning that they are equipped to handle continual rapid growth and still accelerate (Hagen and Zucchella, 2014, Hagen et al., 2012). While their growth too fluctuates, the empirical evidence suggests that their growth waves are smaller than for other firms, as demonstrated by a relatively even development (Delmar et al., 2003). While avoiding the longer stagnation periods, these small fluctuations in the growth may be necessary to further develop their growth management capabilities. Hagen and Zucchella (2014) found that fast-growing companies experience a continuous succession of growth cycles. These contain waves of innovation that trigger reconfiguration and strengthen the current capabilities.

While it is possible that the very top-performing firms in fact exhibit persistent high growth, the inconsistent results of previous studies implies that this may be the case only among a small fraction of the very best. On a sample of gazelles or unicorns, maybe also on a large international sample of BGs, persistent growth would be an interesting hypothesis. However, as the sample used in this study consists of Norwegian exporting SMEs, of which an unknown share may qualify as BGs, a less strict hypothesis may provide more distinctive information.

There seems to be a general agreement among scholars that the best firms do display persistent growth. However, this may not be linear or consistently high enough to fulfill the criteria of persistent HGFs, which require maintaining a certain growth rate with minimal fluctuation. Still, the theory suggests that the growth of the best firms is persistently higher than the remaining firms, enabling them to outcompete their peers. Setting the bar at continuous growth allows for more fluctuation in the growth rate but maintaining the requirement of a positive development. Furthermore, the growth over time may be steady at a relatively high rate even though it is not adequate to meet the persistent HGF-criteria. Therefore, it is hypothesized that the Winners display persistent growth and that this is higher than for the remaining firms.

HYPOTHESIS 1A: The Winners persistently display higher growth than the remaining firms.

The decisive Early-stage

The literature repeatedly points to the early-stage as pivotal for the firm's subsequent development. McDougall et al. (1994) provide a fitting analogy, illustrating the reduction in flexibility as the venture matures as going from turning around a rowboat to the Queen Mary. This explains why the organizational structures, culture, and strategies created in the early-stage are heavily directional for the subsequent trajectory of the firm (Andersson et al., 2020, Rialp et al., 2005, McDougall et al., 1994). The structures become more complex and increasingly inimitable as the venture grows (Rialp et al., 2005). Rialp et al. (2005) point to the complex web of interactions between the intangible resources to explain how the competitive advantage becomes sustainable. A part of this has to do with building a well-functioning network and exploiting the relationships to compensate for lack of resources (Anderson and Dekker, 2014, McDougall et al., 1994).

The ability to handle continually rapid growth is decisive for success and requires preparation and experience (Brown et al., 2017, Hagen and Zucchella, 2014, Roure and Maidique, 1986). Early-stage growth preparation and the simultaneous formation of organizational structures are repeatedly emphasized as crucial for the firm to sustainably endure rapid growth over time (Andersson et al., 2020, Hagen and Zucchella, 2014, Rialp et al., 2005). To succeed in the long-term, BGs need to balance activities related to high iEO and customer orientation with the increased planned behavior needed to reduce risk. According to Andersson et al. (2020), this ability hinges on implementing strategy and culture suitable for international growth in the early stages. In the long-term, continual preparation through the organizational development is a necessity to maintain this capability, but also to the development and long-term conservation of the firm's competitive advantage (Rialp et al., 2005).

Research suggests that the rapid growth occurs after the venture has developed past the early-stage (Brown et al., 2017). In the early stages, rapid growth may jeopardize the long-term stability of some ventures – particularly those run by less experienced entrepreneurs (Brown et al., 2017, Chetty and Campbell-Hunt, 2003). Experience is recurringly highlighted as a success factor related to rapid growth and the ability to sustain it (Hagen and Zucchella, 2014, Gompers et al., 2006, Rialp et al., 2005), playing a particularly decisive role in the early-phase (Caliendo and Kritikos, 2008). Strong correlations have been identified between entrepreneurs who have established start-ups before and the growth and success of their subsequent BGs (Ughetto, 2016, Gompers et al., 2010). The increased likelihood of success arises from improved growth management (Brown et al., 2017, Roure and Maidique, 1986) and market timing abilities (Gompers et al., 2010). Moreover, it reduces risk through organizational, business- and industry-specific knowledge (Brown et al., 2017, Rialp et al., 2005, Roure and Maidique, 1986) and increased stability (Brown et al., 2017). The value of experience appears particularly salient for BGs, as they often experience early market entry and rapid internationalization (Cavusgil and Knight, 2015), which may fuel early growth. Meanwhile, other scholars have found that a strong learning orientation seemingly can compensate for lack of experience and entrepreneurial knowledge (Caliendo and Kritikos, 2008, Hagen and Zucchella, 2014). The ability to utilize network relationships seemingly has the same effect (Chetty and Campbell-Hunt, 2004, McDougall et al., 1994).

Momentum: Growth fueling growth

A debated subject is the effect of past growth on future growth. Several scholars have suggested the presence of a self-reinforcing effect – a positive momentum – working either directly or indirectly. Studies have found evidence of past performance affecting future performance (Moen et al., 2015,

Delmar and Wiklund, 2008, Baum and Locke, 2004), thereby implying that the momentum effect is self-reinforcing. This is supported by Hagen and Zucchella (2014) and Garnsey et al. (2006) who find that growth drives growth. Suggested drivers of this phenomenon are the direct growth effects on resource accumulation and development (Penrose, 1959), and positive feedback loops directly or indirectly strengthening soft factors. Another suggested source of growth fueling growth relates to the management's growth orientation, ambition, and motivation. These concepts will be explored in detail later in the present chapter. Studies have indicated that past performance affects future motivation (Delmar and Wiklund, 2008, Bagozzi and Kimmel, 1995), which has a causal effect on future growth(Moen et al., 2015, Delmar and Wiklund, 2008, Baum and Locke, 2004, Wiklund and Shepherd, 2003). This suggests that soft factors play an important role in catalyzing and maintaining momentum.

Roure and Maidique (1986) attribute early success to a product edge facilitating early market entry and reducing competition. These too are aspects that could possibly induce momentum. Meanwhile, selecting a market with large upside potential is seemingly a prerequisite for any significant momentum (Cavusgil and Knight, 2015, Rialp et al., 2005, Roure and Maidique, 1986). As for the observability of this effect, empirical evidence offers some insight. The momentum effect is seemingly observable in sales growth but not in employment growth. This suggests that there is an inertia in sales development (due to the external environment), while employment is immediately influenced by the managements hiring strategy. Delmar (1997) explains the observable lag in employment growth compared to sales as a precautious management tactic to assure a lasting need before increasing the workforce. Meanwhile, Davidsson et al. (2009) suggest that growth and profitability should develop somewhat coherently for successful long-term growth. This means that the suggested lag should be small to succeed in the long run.

The theory on early-stage developments highlights this phase as pivotal to the firm's subsequent performance. The path dependency induced by organizational and value chain structures set a trajectory that is increasingly difficult to shift at a later stage for poorly performing companies. Meanwhile, companies with appropriate preparation in the early-stage are equipped for performance over time, provided the right leadership. Paired with a proposed momentum effect on growth, this suggests that the Winners may be visible from early on after the initial phase. An interesting research question would be from how early on the Winners can be distinguished based on financial analysis. However, as the dataset of the study contains firms established after 1980, the majority of the firms were well past the early-stage in the timeseries subject to investigation. Still, the early developments clearly entail lasting effects. This reflection has two interesting implications.

The first relates directly to profitability. Given early success and an ability to cultivate the initial growth, this supports the literature suggesting that profitability and growth develop coherently. The unmatched importance of HGFs for the economy (Grover Goswami et al., 2019), particularly when paired with young age of the BGs-subgroup, indicates the same: It seems that the Winners quickly become profitable after the initial phase, and manage to sustain this profitability while expanding. However, as outline in the previous theory, the organization must continually invest in growth preparation (Hagen and Zucchella, 2014). This implicates that which firms will become Winners likely cannot be distinguished from others by their profitability alone in the early stages. Still, said profitability is seemingly a prerequisite and should be visible in retrospective analysis. Thus, it is hypothesized that the Winners display profitability across the complete timeseries.

> **HYPOTHESIS 1B:** Profitability is a prerequisite for high growth.

The second implication of the previous discussion closely related to the first. The path dependency combined with a momentum effect should make the growth of the Winners distinctive over time. Even though there may be a complex causal network causing the momentum effect, the outcomes are clear and measurable: Past growth fueling future growth for high-performing firms suggests an induced performance persistence that is observable over time. A fitting hypothesis is therefore that the best firms recurringly place among the top performers of different pieces of the timeseries.

> **HYPOTHESIS 1C:** The Winners display consistently high performance across the complete timeseries.

3.2 Internationalization

The prevalence of BGs is particularly high in small open economies like the Nordics (Eurofound, 2012, Lehmann and Schlange, 2004, Moen and Servais, 2002). Originating from a small domestic market drives firms to early internationalization (Moen and Criado, 2018, Cannone and Ughetto, 2014). This makes the early-stage particularly decisive for Nordic BGs, as their early internationalization occurs even sooner than for the average BG. In addition, several success factors for achieving continued growth and competitiveness are related to internationalization.

The firm's human capital resources have been highlighted as important for the internationalization capabilities (Rialp et al., 2005), the extent of internationalization (Cannone and Ughetto, 2014) and growth (Ughetto, 2016). Furthermore, the International Orientation (IO), innovation focus, and Entrepreneurial Orientation (EO) are interrelated concepts that are all associated with internationalization and internationalization strategy.

'Born-globalness' and Born exporters

In relation to internationalization, addressing the extent the 'globality' of BGs may provide some nuance to performance assessment and the associated economic importance. This is particularly relevant to samples with large heterogeneity in export scope, as in the sample of the present study. Two concepts are of particular relevance: the degree of 'Born Globalness' and Born Exporters.

The concept of 'Born-Globalness' was introduced by Kuivalainen et al. (2007) as means to consider the scale and scope of internationalization. Cannone and Ughetto (2014) applied this concept to distinguish between BGs involved in a high or low number of markets. However, this classification can easily be made more fine-grained by adding more categories. This makes is highly applicable on a sample of firms with mixed scale and scope of internationalization. Evaluating the degree of born-globalness (DBG) offers differentiation of firms in terms of global outreach and export intensity, thereby adding more nuance to the heterogeneity of a sample of BGs or exporting SMEs. Paired with performance metrics, the concept enables some interesting additional insight into evaluate realized performance against revenue potential.

In assessment of internationalization, several scholars have applied the concept of Born Exporters (e.g., Choquette et al., 2017, Knight et al., 2004, Aspelund and Moen, 2001). To investigate in which aspects BGs are superior, Choquette et al. (2017) categorized their sample into exclusive sets based on degree and pace of internationalization: BGs, start-ups with less intense (Born Exporters), less rapid (Late Exporters) or no internationalization (Stay Locals). The Late Exporters internationalize at a slower pace than the BG-criteria (3 years), while the Born Exporters (BEs) failed to meet the criteria

of 25% revenue from export. Both categories are relevant to the dataset of exporting SMEs in the present study, where several firms are expected not to qualify as BGs despite sharing several characteristics.

Choquette et al. (2017) found BGs to exhibit superior performance in several key performance characteristics, both measures in levels and growth, justifying their stance as special. Meanwhile, BGs displayed significantly wider geographic reach (i.e., DBG) than the BEs. Similarly, Kuivalainen et al. (2007) found that the 'true BGs' (high DBG) had better export performance than the Born Internationals (BEs with low DBG). However, Choquette et al. (2017) found that BGs and BEs were indistinguishable in employment growth. This suggests that it is rapid internationalization and not the export share that drives job creation. Neither in terms of turnover nor productivity – two important socio-economic dimensions – did the BGs demonstrate significantly higher growth than other internationally active start-ups (Choquette et al., 2017). Hence, the findings suggest that ventures will benefit from focusing on international trade and cultivating a global perspective from inception, while the intensity of their international engagement is less decisive. The described global perspective is engrained as a central concept in international business and is the next topic of this chapter: International Orientation.

A global mindset from inception is one of the defining characteristics of Born Global firms. As previously discussed, the sample of this study is not strictly limited to BGs but rather exporting SMEs. However, given the similarities of the two detailed in 2.1, it is likely that a significant share of the sample scores high on DGB. Previous studies have found that 35-50% of Norwegian exporting SMEs to qualify as BGs (Moen and Servais, 2002, Moen, 2002). Still, the share of the Winners that actually are BGs is unknown. This makes it useful to evaluate DBG. The theory on BGs suggests that firms scoring high on DBG – so-called true BGs – should constitute the top-performers of a mixed sample. While their superior performance has wide academic support, the high failure rates observed for BGs open the possibility that firms with less intense or less rapid internationalization among the top-performers. Based on this, it is hypothesized that the firms qualifying for the Winners score high on DBG. These may be BGs or BEs. Categorizing the entire set of firms according to DBG enables investigating how their performance changes with increased internationalization.

HYPOTHESIS 1D: The Winners score higher than the remaining firms on DBG

International Orientation

International Orientation (IO) describes a managerial attitude and commitment towards international markets (Knight and Kim, 2009, Sørensen and Madsen, 2012), often defined as companies that see the world as their market place and actively seek international opportunities (Moen et al., 2015, McDougall-Covin et al., 2003). This closely resembles part of Oviatt and McDougall (1994)'s definition of INVs (i.e. BGs), stating that these firms seek a *"significant competitive advantage from the use of resources and sale of outputs in multiple countries"*, suggesting that a strong IO is definitional to BGs. Strong IO is a much-cited success factor used to explain instant international success and performance over time for BGs (Escandon-Barbosa et al., 2019)

IO has been found to be a consistent predictor of growth in revenue and exports, with close ties to the growth motivation (Moen et al., 2015, Sørensen and Madsen, 2012). Sørensen and Madsen (2012) found the relationship between IO and export market success to be linear. As a key driver of early internationalization (Zucchella et al., 2007), it is suggested to be even more decisive for BGs

than HGFs and other SMEs (Hagen and Zucchella, 2014, Bell et al., 2004). Furthermore, an IO likely forces itself forward in companies from small open economies, who must internationalize early to survive (Moen and Criado, 2018, Bell et al., 2004). However, the growth theory presented in 3.1 suggests that it is beneficial to consciously effectuate high IO from outset rather than waiting until internationalization is imminent.

The importance of a pronounced IO from outset is highlighted by several scholars. This directly relates to the defining decisions and formative developments in the early-stage. As described in the said section, the direction staked out and foundational structures created in this phase are not only challenging to change, but also a key source of inimitable aspects of the firm's competitiveness. Thus, to have an organization built to tackle the firm's internationalization, a pronounced IO must be present from outset (McDougall et al., 1994). According to Hagen and Zucchella (2014), the importance of innovation and IO arises from their effect on the firm's competitiveness through strengthening the current capabilities and triggering reconfiguration of the complex organizational structures.

Entrepreneurial Orientation

EO represents the process-aspect of entrepreneurship (Lumpkin and Dess, 1996). The concept of EO refers to the process of strategizing that provides a basis for entrepreneurial decisions and actions (Wiklund and Shepherd, 2003) measured through the dimensions of risk taking, innovativeness, and proactiveness (Covin and Slevin, 1989). Some scholars also refer to International Entrepreneurial Orientation (iEO) (Covin and Miller, 2014, Kuivalainen et al., 2007, Knight, 2001), a concept describing a firm's EO in perspective of their international operations and strategies, and as such is a product of the firm's EO and IO. As such, iEO may be described as the process-aspect of international entrepreneurship. This is often measured along the same dimensions as EO (Covin and Miller, 2014), sometimes additionally taking the degree of born-globalness into consideration (Choquette et al., 2017, Hagen and Zucchella, 2014, Kuivalainen et al., 2007). Some studies investigating iEO swap the EO-dimension of innovativeness with 'competitive aggressiveness', which refers to the intensity of a firm's efforts to outperform its rivals within the industry (Kuivalainen et al., 2007, Lumpkin and Dess, 2001). This is a broader concept, in which innovativeness is only one of several pieces to enhance the competitiveness.

Both EO and iEO have been identified as antecedents that explain growth strategy and performance differences in firms (Kuivalainen et al., 2007). EO has been found to positively affect early-stage growth of BGs (Gabrielsson and Gabrielsson, 2013). This is supported by the meta-analysis by Rauch et al. (2009) on the body of research on EO, which clearly shows that businesses are likely to benefit from pursuing an EO. The EO-dimensions (innovation, risk taking, and proactiveness) were found to be equally important for business performance. Interestingly, different dimensions of EO were of importance depending on the DBG (Kuivalainen et al., 2007). Meanwhile, the evidence indicated a stronger relationship between EO and performance for smaller companies, where the CEO's EO can more directly affect performance (Rauch et al., 2009).

Also iEO has been found to positively affect the international performance, being particularly crucial for exporting SMEs (Knight, 2001). The highly significant association with the development and activation of strategic competence is highlighted as the most important aspect of iEO. Though the effect is indirect, iEO is the driver of internationalization preparation, strategic competence, and technology acquisition – all key success factors for performance. Additionally, iEO fuels proactive opportunity-seeking and problem-solving behavior (Knight, 2001). Notably, studies on EO and iEO are

prone to survivor bias, as only surviving firms are studied. This implicates that the increased risk-taking related to EO may increase failure rates.

The concepts of growth motivation and entrepreneurial orientation are closely connected in BGs. Studies on growth motivation examine the beliefs and attitudes toward business expansion (Wiklund et al., 2003). Furthermore, Moen et al. (2015) observed that SMEs where the leadership has strong growth motivation also tend to have high IO, and display superior growth both domestically and abroad. Growth motivation and IO are two of several aspects used to guide the internationalization strategy that is definitional to iEO. As such, iEO may be understood as an umbrella construct that gathers several facets of the entrepreneurial persona, including growth motivation, growth orientation and IO.

With a strong IO being related to both the instant and long-term success of BGs, it is highly plausible that this would be a success factor for other internationalizing firms as well. Furthermore, the direct effect on the formative developments in the early-stage signals that having an IO this from outset determines which firms that have potential to become Winners. While some less successful firms may also be internationally oriented from early on, it is a natural deduction to expect that on average the Winners score higher than less successful firms on IO. Also iEO has been found to positively affect international performance, in particular for exporting SMEs, indicating that this too will be stronger in the Winners. Meanwhile, the relation between EO and long-term performance is more complex. As the effect of EO on performance depends on DBG and recedes as the venture grows, the strength of this characteristic may not be homogeneous across the Winners. In a sample of more mature firms, any initial difference is likely no longer detectable, even if it plays a crucial role in the early-stage. Therefore, the derived hypothesis states that the Winners display a significantly stronger iEO than the remaining firms, and that this first and foremost relates to a higher IO.

HYPOTHESIS 2A: The Winners score high on IO and iEO relative to the rest.

3.3 Characteristics of the entrepreneur

As a source of explanation for the special abilities and development pattern of persistent HGFs, many scholars have turned their attention towards the entrepreneur. Several scholars describe the entrepreneur as the firms single most important or main resource (e.g., Dillen et al., 2019, Nicholls-Nixon, 2005, Davila et al., 2010). In her seminal work, Penrose (1959) states that managers with firm-specific experiences and experiential knowledge are vital to both identify growth opportunities and successfully executing growth projects. Also the extensive literature review by Rialp et al. (2005) highlights the crucial function of the so-called 'soft' capital for the BGs' competitiveness. Particularly, the specialized knowledge of the management and the entrepreneur, continual learning and exploitation of core competencies are pointed to as sources of the 'invisible' competitive advantage.

Leadership and Growth Ambition

A driver that has gathered attention of scholars is how the leadership's mindset affects the future growth of the company. According to Chandler and Hanks (1993), the entrepreneur's specialized competence and drive is related to venture growth, while the managerial competence is related to business volume. Previous research has suggested a causal link between the manager's growth motivation and the realized growth in small businesses (Moen et al., 2015, Delmar and Wiklund,

2008, Baum and Locke, 2004, Wiklund and Shepherd, 2003). Other studies have indicated that future motivation is affected by past behavior and performance (Delmar and Wiklund, 2008, Bagozzi and Kimmel, 1995). This suggests that the relationship between motivation and growth is intricate and mutually influential. Additionally, McKelvie et al. (2017) found that growth orientation affects firm growth. A positive correlation was identified between growth orientation and innovative activities, where the latter worked as mediators of the relationship between growth orientation and actual growth (McKelvie et al., 2017). Growth orientation can be understood as a more action-oriented prolongation of growth motivation, thereby illustrating the translation that happens from motivation to orientation to innovation and finally growth. Thus, a strategy that emphasizes innovation has significant impact on growth.

The influence of motivation may be highly case-specific to the venture (Shane et al., 2003). However, as BGs usually are rather small due to their young age, the effect may be notable. Motivation has a greater direct effect the smaller the company is but recedes and becomes more indirect as the company grows. This is sensible as each team member plays a more decisive role in a small company (Caliendo and Kritikos, 2008). For BGs, this suggests that growth motivation in the early phase may increase the likelihood of a steep growth trajectory, through positive feedback loops from early growth. Meanwhile, other factors than motivation among the entrepreneur's characteristics may be more decisive for growth.

Cavusgil and Knight (2015) describe the leadership of BGs as 'change agents', who are motivational proponents for the internationalization effort. These people seemingly possess an EO and mental models that "discount" the risk of going international. While the venture is small, the personal-level mindset of these figures governs and is definitional to those on firm-level (Caliendo and Kritikos, 2008, Delmar and Wiklund, 2008). This is true for growth motivation, entrepreneurial orientation, and international orientation. Thus, the personal-level motivations of these individuals indeed matters for the performance of the firm (Delmar and Wiklund, 2008, Cavusgil and Knight, 2015, Moen et al., 2015) and shapes the organization (Caliendo and Kritikos, 2008, Andersson, 2000). Drawing on the research of Rauch et al. (2009) and Moen et al. (2015), it is possible that the combination of a strong growth motivation and high EO reduces the impact of past performance.

Dillen et al. (2019) stress the crucialness of hiring management at the right time for a venture to proceed from 'one-shot' status to become a persistent HGF. This measure has dual effect: to attain experiential growth management and to free capacity of the entrepreneur, thereby enabling sole focus on performing the tasks in which she is an unmatchable resource to the firm. At the same time, 'the Penrose effect' (Penrose, 1959) prescribes the management as a core constraining factor on the firm's rate of growth. Thus, the timing of hiring professional management is crucial – entering management too early may curb the development, while entering too late may cause stagnation in growth (Dillen et al., 2019). Before reaching this point, the ability to handle rapid growth and internationalization is largely dependent on the personal characteristics of the entrepreneurs (Hagen and Zucchella, 2014, Oviatt and McDougall, 2005). As previously mentioned, the leadership's mindset and management skills for are crucial for performance. Consequently, changing the management may be an effective move for an underperforming company.

The evidence is somewhat inconsistent in its description of the mutual influence between the firm's past and future growth and its inherent growth motivation, growth orientation and international orientation (McKelvie et al., 2017, Moen et al., 2015, Delmar and Wiklund, 2008). The web of transverse effects between intent, action and realization is intricate. However, the evidence clearly identifies causal relations linking growth motivation and ambition to growth orientation, which affect strategy and subsequent actions, here amongst innovation focus. These all directly or indirectly fuel

growth (McKelvie et al., 2017, Cavusgil and Knight, 2015, Moen et al., 2015, Delmar and Wiklund, 2008, Chetty and Campbell-Hunt, 2004, Baum and Locke, 2004, Shane et al., 2003). Regardless of the details in the nature of the relationship, the evidence clearly suggests that strong growth ambitions fuel firm growth. In terms of the Winners, it is therefore natural to hypothesize that they have ambitions of high growth and that this is related to high growth and profitability over time.

HYPOTHESIS 2B: The Winners have higher growth ambitions than the remaining firms

Entrepreneurial traits

Not everyone owning a business are considered entrepreneurs. While business owners happily aim for stability in growth and profits, entrepreneurs are set apart by their aggressive focus on innovation and growth (Kuratko, 2016). These distinguishing features have a connection to both IO and EO, but also link to personal-level characteristics investigated in entrepreneurship research.

Gompers et al. (2006) found a significantly increased success rate of previously successful entrepreneurs, almost double that of novel entrepreneurs. This emphasizes the importance of experience, but also suggests that the entrepreneurs bring some inherent qualities that are favorable to all their ventures. Research has shown significant differences in personality traits related to entrepreneurial success between successful entrepreneurs and managers, and between successful and unsuccessful entrepreneurs (Caliendo and Kritikos, 2008). Furthermore, these characteristics have a defining impact on early-phase formative activities (Caliendo and Kritikos, 2008). Among such decisive 'soft' traits recurringly investigated in literature, are openness (Hagen and Zucchella, 2014, Caliendo et al., 2014) and risk attitude (Block et al., 2015, Begley and Boyd, 1987) in personality traits, and gender, age and education in human capital traits (Ughetto, 2016, Parker, 2009, Caliendo and Kritikos, 2008).

Perhaps the least investigated of the above mentioned entrepreneurial traits is 'openness' (Hagen and Zucchella, 2014). This may be interpreted as including a curiosity for learning, a recurringly mentioned success factor. Chetty and Campbell-Hunt (2004) point to an aggressive learning style that seeks experimentation, tolerates initial failure, and looks for solutions as problems arise as important drivers of early internationalization. Meanwhile, continual learning plays a central role in the long-term conservation of competitiveness. While a strong EO is perceived as beneficial for the growth of young ventures, research on maturing BGs suggest that a learning orientation and more planned behavior is more beneficial in later stages. At maturity, a too strong EO entails high risk and may jeopardize survival (Gabrielsson et al., 2014, Gabrielsson and Gabrielsson, 2013).

The firm's human capital resources are highlighted as important for the internationalization capabilities (Rialp et al., 2005), the extent of internationalization (Cannone and Ughetto, 2014) and growth (Ughetto, 2016). Particularly, the managements' specialized knowledge, continual learning and exploitation of core competencies are pointed to as sources of the 'invisible' competitive advantage (Rialp et al., 2005). A related characteristic central to this is innovativeness.

Innovativeness

Innovation has repeatedly been highlighted as possibly the single most important factor contributing to sustained high growth and performance of BGs (Cavusgil and Knight, 2015, Rauch et al., 2009, Rialp et al., 2005). Continuous innovation is stated as a crucial success factor (McKelvie et al., 2017, Hagen and Zucchella, 2014, Rauch et al., 2009), while innovativeness as a key characteristic of both BGs (Rennie, 1993, Knight and Cavusgil, 2004) and the entrepreneur (Rialp et al., 2005). While early preparation for growth is decisive for sustained high growth, continual innovation is mainly connected to sustaining a competitive advantage (Rialp et al., 2005) – which also fuels growth in the long-term. Innovation is important for firm growth in general, but even more so for BGs as they compensate for their size by offering an innovative edge (Cavusgil and Knight, 2015, Moen and Servais, 2002).

Rauch et al. (2009) defines innovativeness as *"the predisposition to engage in creativity and experimentation through the introduction of new products/services as well as technological leadership via R&D in new processes"*. This closely resembles the trait creativity/ingenuity, which was found most decisive for success by Khan (1986) in his study on the characteristics of successful entrepreneurs.

Shane (2003) found high innovativeness to improve the firm's capability to identify and create opportunities. Identification of opportunity is a trait connected to successful entrepreneurs (Gompers et al., 2010, Zahra et al., 2005), and a particular characteristic of the managers of persistent growth SMEs (Moen et al., 2015). As previously mentioned, the growth motivation and ambition of managers in SMEs is formative for the venture. Azari et al. (2017) found growth ambition to also positively affect the level of innovation.

Several scholars point to the entrepreneur's network relationhips as means for BGs to overcome scarce resources and critical to their early internationalization (Cannone and Ughetto, 2014, McDougall et al., 1994, Chetty and Campbell-Hunt, 2004). As the venture matures, it is not unlikely a that this continues to be a source of knowledge and inspiration as means to sustain high performance. Hult et al. (2004) found a learning orientation to be an antecedent to innovativeness. Furthermore, market orientation, learning orientation, and EO (here conceptualized as proactive and risky acts to exploit opportunity), were all found to drive innovativeness and enhance performance. The importance of engraining these orientations in the culture for outset was highlighted as essential (Hult et al., 2004). Thus, it appears that actively engaging with sources of knowledge and inspiration is a key success factor that drives the performance of the best firms.

Together with innovativeness and EO, th extensive review by Cavusgil and Knight (2015) lists experience as an organizational characteristic particularly salient in early internationalization and success. Investors and entrepreneurs alike underscore the value of experience both in their predictions and explanations of success. Unlike innovativeness and EO, experience is easily quantifiable and arguably more objective, which perhaps has caused an overemphasis of its effect simply due to being measurable. Meanwhile, the actions that follow high innovativeness and EO have received less attention. These are sources of the 'invisible' competitive advantage (Rialp et al., 2005). It is therefore an interesting research question what this mindset entails in practice. Based on the above discussion, it appears that an active search for inspiration and routines to facilitate continual organizational learning and are core activities.

The above discussions on entrepreneurial traits and innovativeness clearly signals that there is a key success factor related to information acquisition and learning processes. This appears to lie in the intersection between strategy and the interrelated soft traits of innovativeness and openness. While

this construct may be difficult to test, the resulting actions are highly testable. However, the behavior becomes more planned and routinely with maturity,, reducing the importance of the traits (Chetty and Campbell-Hunt, 2003). This makes investigating differences in routines related to information acquisition and learning processes a solid measure.

It is hypothesized that the firms that manage to perform over time display a more engaged learning style, meaning that they are better at exploiting their connections and using alternative sources to acquire inspiration and knowledge. Furthermore, it is also expected that they are better at internalizing the knowledge they acquire. Together, these appear decisive for both initial success and to succeed with continued growth and internationalization.

> **HYPOTHESIS 2C:** The Winners' engaged search for information and their learning processes to internalize acquired knowledge are distinctive success factors.

3.4 Summing up the hypotheses

To summarize, the following hypotheses will be investigated:

HYPOTHESIS 1 – THE GROWTH OF THE WINNERS

The growth of the Winners is characteristic and related to the internationalization (degree of Born Globalness)

This will be investigated through the following sub-hypotheses:

> **HYPOTHESIS 1A:** The Winners persistently display higher growth than the remaining firms.
>
> **HYPOTHESIS 1B:** Profitability is a prerequisite for high growth.
>
> **HYPOTHESIS 1C:** The Winners display consistently high performance across the complete timeseries.
>
> **HYPOTHESIS 1D:** The Winners score higher than the remaining firms on DBG.

HYPOTHESIS 2 – THE MINDSET OF THE WINNERS

The mindset of the leadership shapes several crucial features of the Winners that directly relate to their performance.

This will be investigated through the following sub-hypotheses:

> **HYPOTHESIS 2A:** The Winners score high on IO and iEO relative to the rest.
>
> **HYPOTHESIS 2B:** The Winners have higher growth ambitions than the remaining firms.
>
> **HYPOTHESIS 2C:** The Winners' engaged search for information and their learning processes to internalize acquired knowledge are distinctive success factors.

The first hypothesis targets quantifiable aspects of firm growth and performance that can be investigated through a financial analysis. The objective is that the findings of this hypothesis can provide certain objective guidelines that can be used to identify investments with high likelihood of becoming top-performers.

The second hypothesis investigates the mindset of the top-performers management. The objective of this hypothesis is to derive a short list of decisive success factors to reduce the degree of subjectivity in the investment process. This includes certain success-related characteristics to look for in founders of potential investments and when hiring management of current investments.

It is appropriate to mention some clear limitations. There may be factors that are not included in the dataset of the present study that are crucial for becoming a Winner. It is possible that these are equally influential, or even far more decisive, than those suggested in the hypotheses. However, the possibilities are constrained by the dataset I have, and the hypotheses must be designed according to what is possible to answer. Meanwhile, this also means that later studies can advantageously examine other factors. This contributes to the field by forming a more complete picture of which

different success factors shape the performance of the best, the interrelatedness between them, and which are most crucial.

Another important limitation relates to the definition of the Winners. There are several reasons why a company can get a sudden performance boost and achieve a steep weight curve. These can broadly be grouped as internal or external to the firm. For this study, external factors have been assumed steady on market level. Only internal factors in the form of financial metrics were used to determine which firms were Winners. As the dataset is cross-industrial, this assumption has been generalized across different industries. This is an inaccurate but necessary assumption. External factors can regulate growth, unrelated to the internal workings of the firm. Examples of this are sudden change in the market, as seen during the financial crisis in 2008, again with the COVID-19 pandemic, and presently with the war in Ukraine. While the financial crisis was generally hit hard across industries, the heavy restrictions during the pandemic depleted certain industries while generating a lift in others. Thus, some firms in the sample may be affected positively or negatively by industry specific events. This is an important reflection. However, trying to take such events into consideration would be an immense challenge.

4 Measuring the growth and performance of the firms

This chapter will go through the groundwork that was conducted with the objective of creating a ranking of the firms in order to identify 'the Winners', defined as some top x% of Born Globals by Hjermstad (2021). The process includes creating a variety of growth measures to assess the firms' growth, analyzing their consistency, and build a measure to select the Winners. Finally, a representable selection is made to use in the subsequent analysis of the hypotheses.

The purpose of ranking the firms is not so much to prescribe a given placing to each firm as it is to obtain grounds for clustering the firms in terms of their performance. For the analysis of the present study, this entailed splitting the firms in the sample into two groups: top x%-performers and the remaining firms. It was considered to also create a category for the bottom x% as means to inspect in which the best firms stand out from the worst and the average performers. However, due to the amounts of missing data for the firms in the bottom half of the ranking, it was not possible to confidently identify a bottom x%. This would however be an interesting design in subsequent studies.

Exactly which firms that qualify as 'Winners' or are just below the threshold for inclusion is expected to be somewhat fluid, as this is dependent on the growth measure basis to the ranking. Ideally this variation will be small, meaning that the best firms consistently claim top rankings and the weak performing firms place lower on the ranking across all measures. Meanwhile, as long as those who qualify for the final selection of the Winners clearly belong to the top segment in terms of performance, this should be sufficient to derive general characteristics in which they differ from the lower performing firms. Still, as a premise for the subsequent analysis, the selection of growth measures and subsequent identification of the Winners are foundational aspects of the study. Therefore, this chapter is devoted to describing said preparatory work.

4.1 Building the growth measures

To investigate the peculiarities of the best firms, it is necessary to identify who the best actually are. While there are several ways to do this, they all require an assessment of firm performance, which enables creating a ranking. As presented in chapter 2.1, performance is often measured in terms of growth. This makes the growth measurement of the firms in the sample a crucial task with direct influence of the remaining analysis. As presented in 2.2, building a growth measure entails a series of choices that affect the result in different ways. Therefore, making these choices consciously and with comprehension of the associated strengths and weaknesses is of essence.

Looking at multiple growth measures and investigating their consistency is an important step for a solid foundation to base the analysis on. This is particularly essential in the present study. While other studies may investigate growth as one of several measurable features to characterize a firm, obtaining a growth-based performance ranking is fundamental to the analysis of this study. Thus, the quality of the entire study is significantly weakened if the ranking does not withstand scrutiny. Based on this crucialness, the following chapter will derive the growth measures applied in the present study. This involves going through the train of thought and evidence supporting the choices made regarding indicator, mode of growth, formula, and period. These choices will result in a selection of growth measures, which will be analyzed for consistency in chapter 4.3 before making a final selection in chapter 4.4 to apply in the analysis of the dataset.

Indicators: Sales and employment

As presented in chapter 2.2, there is a broad variation in the field regarding how growth is measured (Gupta et al., 2013). However, when it comes to certain choices, scholars are more in agreement. Sales and employment are clearly the most frequently used indicators within the field of entrepreneurship (Delmar et al., 2003, Delmar, 1997) and in high-growth studies (Daunfeldt et al., 2014). While sales directly reflect market demand, employment is less volatile and represents job creation, and thus by some regarded as a more representative measure of economic impact (Delmar, 1997, Coad et al., 2014a). As pointed out by Delmar (1997), there is often a certain lag in employment growth compared to sales. This is explained as a managerial strategy to enable correction for fluctuations in sales before increasing the workforce in response to growth.

Meanwhile, both sales and employment are objective indicators. The use of subjective measures has been criticized by e.g. Chandler and Hanks (1993), who problematize the fact that different individuals may evaluate the same level of performance differently, depending on personal expectations and goals. On the other hand, this provides insight into the entrepreneur's personal perception of success – particularly when paired with objective performance measures – which may be particularly relevant for the research question of the present study. As such, a clear strength of the present study is the combination of objective financial numbers and subjective perceptions collected through the survey. The questionnaire contains several questions specifically targeting performance evaluation and subjective metrics such as market share.

A recurring explanation for using financial indicators, is accessibility. Although practicality should not be at the expense of accuracy, this argument is of greater importance than one may first think. The reason is that financials, which are mandatory to report and often publicly available, provides easy access and collection of a lot of quality-assured data. This enables larger studies, which again increases the solidity. Illustrating this point using the present study, its dataset contains information on the companies' market shares and numbers on e.g. sales and employment. However, the market share is a single self-reported datapoint for 2014, thus would require further data collection to measure development. This is a demanding and time-consuming task, as it requires reaching out to every firm one-by-one. In contrast, complete financial records could be extracted for all the firms simultaneously from a public database, collecting data for every year over the 13-year period. Not only was the number of missing values significantly lower than what should be expected from a contact approach (e.g., the questionnaire had a response rate of 16.7%), but it was also done in a matter of hours.

Another aspect of the practicality is that following the example of other scholars enables comparability. Neither this should be done at the expense of quality, but is a frequently used explanation presented in studies, with references to previous studies. In a review of 55 growth studies, Delmar (1997) concluded that *"direct comparability among studies was low because a large array of different indicators, time periods, and calculations were used when assessing growth"*, thereby limiting the knowledge that could be drawn from reviews like the beforementioned. Shepherd and Wiklund (2009) point to the inconsistency in applied measures as a source of both inconsistent results and lower degree of comparability. Thus, following the same method as other scholars has a certain additional value – given that the method is good and produces reliable results.

Based on the above discussion, it seems most sensible to choose employment and sales as indicators. Notably, choosing both indicators and varying these between otherwise similar measures enables comparability and reflection of different aspects of the firm, as encouraged by Delmar et al. (2003). As the dataset contains a timeseries of export data, the development in export revenue is highly relevant and an interesting addition to the outlined hypotheses. However, large amounts of missing values and inconsistent reporting in the different export categories, the export data could not be used in the present study. Future studies are encouraged to obtain more complete data on export and exploit this indicator to their analysis.

Mode of growth: Total growth

The argument of accessibility becomes particularly relevant in relation to mode of growth. As highlighted in chapter 2.1, sufficient information on M&As is usually difficult to obtain. Despite some disagreement about how the company's "real" growth is best reflected, using total growth (organic and inorganic) seems like a good choice. Arguments for using this mode are that organic and inorganic growth are guided by similar strategic choices (Spearot, 2012), one of which relates to improved resource allocation, and that acquisition of inferior competitors is an important growth strategy for Gazelles (Henrekson and Johansson, 2010).

Total growth is used in a predominant part of research precisely due to accessibility and admittedly also because the lack of information limits other options (Coad et al., 2014a). Either way, the consistency allows comparability. In the case of this study, the available data did not distinguish between organic and inorganic growth, thus total growth was chosen by default. Despite Henrekson and Johansson (2010) highlighting M&As as a common growth strategy for HGFs, this is expected not to occur too frequently over a 13-year period for Norwegian exporting SMEs, resulting in most years only containing organic growth. Meanwhile, the dataset contains some cases of acquisitions where a sampled firm is acquired. In these cases, the organization in the dataset ceases to exist and enters the organization number of its acquirer. In these cases, the data series stop at the time of acquisition.

Formula for calculation: absolute and relative

Studies have reported differing results on the correlation between growth measures using sales and employment. It has been described as both modest (Shepherd and Wiklund, 2009) and high (Delmar, 1997). Still, the choice of indicator appears not to affect the result (Daunfeldt et al., 2014). This is not the case for the choice of calculation. Scholars have found the choice between absolute or relative measurement to be the primary determinant of which firms qualify as HGFs (Daunfeldt et al., 2014, Almus, 2002). This makes choice of calculation perhaps the most decisive choice for the growth measure as a whole. The reason is that different methods exhibit formula-specific size-biases. As described in 2.1, calculation in absolute terms favors large firms, while relative measurement favors small firms. This size-bias effect is important to be aware of, as the result is a skewed sample in either direction. As a solution, it is common practice to include both relative and absolute calculations in the analysis to inspect the solidity of the results. Therefore, all growth measures constructed in this study were made in pairs: one with absolute and one with relative calculation.

The most widely used calculation approach is the Birch Index. While HGFs have the highest growth rate, High-Birch firms (HBFs) have been found to be the biggest contributors to new job creation (Hölzl, 2013). Given that the socio-economic impact of the Winners may be considered the primary

aspect of their importance, it is sensible to include measures built on the Birch Index. As presented in chapter 2.1, the index combines absolute and relative growth, making it an effective method to deal with the issues of size-bias. However, relying on this method alone would eliminate the possibility of exploiting the timeseries data, since the index is based on a point-to-point formula. An option would be to calculate the index for every timestep and create some sort of cumulative average Birch index, but that would seemingly be a new invention. Instead, it was opted to calculate two variants of the Birch Index using the traditional formula, the first being the conventional employment-based index and the second using sales as indicator.

Some scholars also apply a logarithmic scale to further reduce size-bias (Coad et al., 2014a). This was considered as a possible maneuver in case of inconsistency but was found not to be necessary for the point-to-point measures. Meanwhile, to be able to exploit the timeseries data, introducing logarithmic calculation was found necessary to obtain correct results. Using year-to-year growth, an absolute calculation would mathematically equal measurement using the endpoints. As for the relative measure, successive relative changes are not additive (Tornqvist et al., 1985). Thus, introducing the natural logarithm was a solution to calculate the average growth rate over a timeseries. Details on the formulas for calculation are presented in the subsequent chapter, *4.2 Growth calculation formulas*.

The plan to build different measures to test for internal consistency allowed testing multiple formulas for calculation to investigate their effect on the firms' ranking. Thus, measures were built varying between absolute and relative measurement, and the Birch-index and cumulative averages. This approach follows the advice of Delmar et al. (2003), aiming to reflect different aspects of the firm and together obtain a comprehensive overall picture. After testing the measures for consistency, it was an objective to keep some diversity in the final choice of measures to ensure representability.

Period

Choosing an appropriate period length for measurement is a key issue in relation to rapidly growing firms such as BGs and HGFs. Empirical studies on firm growth have typically assessed periods with duration from 1 to 5 years (Delmar and Wiklund, 2008), while most HGF-studies use 3- or 4-year periods (Coad et al., 2014a).

As the literature suggests that most HGFs experience rapid growth in bursts (Brown et al., 2017) and do not exhibit persistent high-growth (Daunfeldt and Halvarsson, 2015, Nicholls-Nixon, 2005), capturing a representative growth picture is a challenge. Meanwhile, the dataset of the present study was a response-based selection from the population of all exporting SMEs in Norway in 2014. As a result, the age of the companies varies significantly, with an age gap of 33 years between the eldest and youngest firm. Consequently, there is great variation in terms of where the various firms are positioned in their respective lifecycles. Additionally, the aim was not to sift out which firms were HGFs or BGs, but rather to identify the top performers in the dataset. Therefore, it was decided to exploit all 13 years of the available data for the measurement. To do this, three periods of measurement were chosen: the complete timeseries spanning 2008-2020, and two sub-periods 2008-2014 and 2014-2020 where the survey took place in the middle. This decision allowed investigating the longitudinal development of the firms and examine the level of performance persistence by comparing firms' performance across the three periods.

Period measurement

When it comes to the utilization of the data in the period, there are two natural approaches. The first is point-to-point measurement, where the average growth for the entire period is calculated simply using the start and end-point values. The Birch Index is built on this approach. Neither the length of the period nor variations in between the endpoints are taken into consideration in the calculation. This has the effect of smoothing over the years. A benefit is that the discussed low-growth years expected in parallel to heavy investments in future growth, do not affect the result. The other approach is to bring the annual growth rates into the equation. The resulting growth rate will be the cumulative average of the growth achieved each year. This approach allows exploiting larger amounts of data, such as the 13-year timeseries of financials in the present study.

The two approaches provide different insight. The point-to-point measurement informs about the overall trend in growth. It shows the realized growth over the measurement period, regardless of intermittent events. As for the timeseries measurement, it provides insight into what the 'normal' growth has been over the period as a real average. Meanwhile, the most amount of information is perhaps obtained when comparing the two, and by looking at the breadth of variation in year-to-year growth used in the timeseries calculation. A company with stable annual growth, one with fluctuating growth rates, and one with a few large growth bursts may portray the same average growth. Based on this, it was therefore chosen to make measures for both approaches to compare and investigate at the consistency.

4.2 Growth calculation formulas

As discussed in chapter 2.2 *Growth measurement*, there are several ways to measure growth that each have their strengths and weaknesses. As advised in the reviewed literature, various measures were used to calculate growth in order to attain multiple variables for the analysis. This included varying measurement method (relative vs absolute), indicator (sales vs employment), and period measurement (start to end vs time series) according to the discussion in chapter 4.1. The final element of building each growth measure is the formula for calculation. The various methods for calculation will be presented in this chapter.

Birch Index

The Birch Index, which multiplies the point-to-point absolute and relative growth rates, is widely used in practice. The formula is as follows:

Equation 1 – Birch Index

$$Birch\ Index = \left(i_{t_1} - i_{t_0}\right) * \left(\frac{i_{t_1}}{i_{t_0}}\right)$$

$$where\ i_{t_1}\ \text{is the value of indicator } i \text{ at time } t_1;$$

$$i_{t_0}\ \text{is the value of indicator } i \text{ at time } t_0;$$

The Birch Index was calculated once using sales in 2020 and 2008, and once using number of employees in 2020 and 2011 (this was the first year with available employment data).

Point-to-point growth measures

The point-to-point growth measures are relatively straight forward. The formula simply calculates the growth over an entire period using the start and end-values of the indicator.

- Absolute

Equation 2 – Absolute point-to-point growth

$$G_{abs,be,i} = i_{t_{end}} - i_{t_{beginning}}$$

where abs: absolute, be: beginning to end timepoints, i_t: value of indicator i at time t

- Relative

Equation 3 – Relative point-to-point growth

$$G_{rel,be,i} = \frac{i_{t_{end}} - i_{t_{beginning}}}{i_{t_{beginning}}}$$

where rel: relative, be: beginning to end timepoints, i_t: value of indicator i at time t

- CAGR

Additionally, the Compound Annual Growth Rate (CAGR) belongs to the point-to-point measure as a key metric. It represents the annualized average growth rate over the given period, i.e. the annual growth if it the company had grown steadily at the same rate every year (Fernando, 2021). This is perhaps the single most used metric to assess a company's growth and performance and to create growth forecasts by practitioners, thus holds great practical value.

The CAGR was calculated for each firm in four variants detailed below, applying two different start points and changing the indicator between sales and employment.

Equation 4 – Compound Annual Growth Rate (CAGR)

$$CAGR = \left(\frac{V_{t_{end}}}{V_{t_{beginning}}}\right)^{\frac{1}{n}} - 1$$

where n: number of years measured over,

V_t: value at time t of some value indicator, such as sales or revenue

Calculating this metric presented a challenge. A handful of the firms in the dataset were established in the period between 2008 and 2014. Being a comparative metric means tailoring the CAGR by adjusting start- and endpoints to each company's dataseries (e.g., by a logic test) would be incorrect. This forced choosing 2014 as start point for the CAGR to avoid excluding the youngest firms (which, judging from the literature on Born Globals may be the most interesting). Meanwhile, it was also an objective to investigate the financial developments of the firms ahead of the survey to compare the developments before and after this point. Therefore, it was opted to calculate the metric twice covering different endpoints. The first period was 2014-2020. The second calculation covered 2008-2020 for sales and 2011-2020 for employment.

Timeseries growth measures

The timeseries growth measures were calculated as the average of the annual growth rates. As previously mentioned, computing this in absolute terms is mathematically equal to the measure using the endpoints, thus not providing any new information. As for the relative calculation, this was done using logarithmic calculation.

The calculation was done in two steps, as shown by the formula below: First, the growth was calculated using the natural logarithm on a year-to-year basis for all 13 years in the timeseries. A logic test was added to ensure that years with missing data were skipped. From these numbers, the average growth rate could then be calculated.

Several firms were either acquired, discontinued, or defaulted during the 13-year timespan of the dataset, leading to 'missing' values for the subsequent years. As mentioned, a handful of firms were also established after 2008. This presented a challenge for the CAGR-calculations as the number of datapoints varies from firm to firm. However, as the timeseries is an average, a logic test could solve the problem in this case. The timeseries growth measures were therefore computed as the average growth rates of <u>the available years</u>. While these may not be perfect grounds for comparability, it was regarded as the most accurate approach. A logic test was a crucial factor to obtain a correct result, so that the average was computed for the correct number of years.

The timeseries growth measures were calculated for both sales and employment. The timeseries for sales was calculated over the entire 13-year span (2008 to 2020) and the period after the survey (2014-2020). The employment timeseries was only calculated in one edition (2011-2020), as the indicator only contains three data points; 2020, 2014 and 2011.

Equation 5 – Timeseries logarithmic relative growth

$$G_{rel}^* = \sum_{T=t_{beginning}}^{T=t_{end}} \left(\ln(i_T) - \ln(i_{T-1}) \right)$$

$$where\ rel: relative, ts: timeseries\ calculation, i_t: value\ of\ indicator\ i\ at\ time\ t$$

$$G_{rel,ts,i} = \overline{G_{rel}^*}$$

4.3 Correlation analysis of multiple measures

A range of growth measures were constructed based on the previous discussion, varying indicator between sales and employment, period between point-to-point and timeseries, and formula between absolute and relative measurement. Additionally, variants of the Birch Index and the CAGR were computed.

The calculated growth measures are summarized in Table 1. All measures were calculated in three editions – once for the overall period 2008-2020 and for each of the sub-periods of the timeseries (2008-2014 and 2014-2020).

As the employment data only contains three datapoints, 2011, 2014, and 2020, only one timeseries measurement could be calculated for this indicator. Despite growth measures built on employment in reality have start point in 2011, these measures will be denoted 2008 to signal the period of the timeseries it belongs to. This can be observed in the various statistical results and tables throughout the remains of the paper.

Table 1 – Overview of the growth measures

No.	Calculation	Indicator	Period	Calculated for years	
1	**Birch Index**	Sales	Point-to-point	2008-2020	2014-2020
2	**Birch Index**	Employment	Point-to-point	2011-2020	2014-2020
3	**CAGR**	Sales	Point-to-point	2008-2020	2014-2020
4	**CAGR**	Employment	Point-to-point	2011-2020	2014-2020
5	**Absolute**	Sales	Point-to-point	2008-2020	2014-2020
6	**Relative**	Sales	Point-to-point	2008-2020	2014-2020
7	**Absolute**	Employment	Point-to-point	2011-2020	2014-2020
8	**Relative**	Employment	Point-to-point	2011-2020	2014-2020
9	**Relative logarithmic**	Sales	Timeseries	2008-2020	2014-2020
10	**Relative logarithmic**	Employment	Timeseries	2011-2020	-
			Illustrated in:	Figure 3	Figure 2

The correlations between these measures were tested, resulting in the matrix shown in Figure 2 and Figure 3. These display the correlations between the growth measures for 2014-2020 and 2008-2020, respectively. A correlation matrix covering all the growth measures both measurement periods can be found in Appendix *A4: Complete correlation matrix*. This shows that the correlations between measures covering the entire period (2008-2020) are well-correlated with those for the period after the survey (2014-2020).

As shown by the correlation matrices in Figure 2 and Figure 3, the correlations between the different measures are consistently significant and relatively high for both measurement periods. For 2014-2020, 32 out of 36 measures are significantly correlated, of which 28 are significant at the 0.01-level. For 2008-2020, 43 out of 45 are correlated. Of these, 37 are significant at the 0.01-level and the remaining 6 at 0.05-level. All cases without correlation (illustrated in red) are comparing measures of sales growth and employment growth, which are not necessarily well correlated across different measures (Delmar, 1997). Additionally, the relation between the two is affected by both firm- and industry-specific factors, such as product scalability and market growth. With this study's sample allowing firms from all industries, the effect may vary greatly between the firms in the sample.

Figure 2 – Correlation matrix for the 9 different growth measures for period 2014-2020

Correlations

		Birch Index employment growth 2014-2020	Birch Index sales 2014-2020	CAGR sales for 2014-2020	CAGR employment for 2014-2020	Abs sales growth be 2014-2020	Rel sales growth be 2014-2020	Abs empl growth be 2014-2020	Rel empl growth be 2014-2020	Rel log sales growth timeseries 2014-2020
Birch Index employment growth 2014-2020	Pearson Correlation	--								
	N	157								
Birch Index sales 2014-2020	Pearson Correlation	,271**	--							
	Sig. (2-tailed)	<,001								
	N	153	164							
CAGR sales for 2014-2020	Pearson Correlation	,218**	,228**	--						
	Sig. (2-tailed)	,007	,003							
	N	153	164	164						
CAGR employment for 2014-2020	Pearson Correlation	,296**	,141	,693**	--					
	Sig. (2-tailed)	<,001	,081	<,001						
	N	156	153	153	156					
Abs sales growth be 2014-2020	Pearson Correlation	,305**	,952**	,230**	,146	--				
	Sig. (2-tailed)	<,001	<,001	,003	,072					
	N	153	164	164	153	164				
Rel sales growth be 2014-2020	Pearson Correlation	,174*	,272**	,569**	,282**	,146	--			
	Sig. (2-tailed)	,032	<,001	<,001	<,001	,062				
	N	153	164	164	153	164	164			
Abs empl growth be 2014-2020	Pearson Correlation	,710**	,261**	,428**	,423**	,349**	,145	--		
	Sig. (2-tailed)	<,001	,001	<,001	<,001	<,001	,074			
	N	157	153	153	156	153	153	157		
Rel empl growth be 2014-2020	Pearson Correlation	,578**	,212**	,490**	,633**	,164*	,503**	,400**	--	
	Sig. (2-tailed)	<,001	,009	<,001	<,001	,043	<,001	<,001		
	N	156	153	153	156	153	153	156	156	
Rel log sales growth timeseries 2014-2020	Pearson Correlation	,166*	,183*	,898**	,655**	,214**	,442**	,561**	,425**	--
	Sig. (2-tailed)	,038	,019	<,001	<,001	,006	<,001	<,001	<,001	
	N	157	164	164	156	164	164	157	156	190

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

Figure 3 – Growth correlation matrix for the 10 different growth measures for period 2008 (sales) and 2011 (employment) to 2020

Correlations

		Birch Index employment growth 2011-2020	Birch Index sales growth 2008-2020	CAGR sales for 2008-2020	CAGR employment for 2011-2020	Abs sales growth be 2008-2020	Rel sales growth be 2008-2020	Abs empl growth be 2011-2020	Rel empl growth be 2011-2020	Rel log sales growth timeseries 2008-2020	Rel log employment growth timeseries 2011-2020
Birch Index employment growth 2011-2020	Pearson Correlation	--									
	N	123									
Birch Index sales growth 2008-2020	Pearson Correlation	,504**	--								
	Sig. (2-tailed)	<,001									
	N	115	153								
CAGR sales for 2008-2020	Pearson Correlation	,265**	,245**	--							
	Sig. (2-tailed)	,005	,002								
	N	113	151	151							
CAGR employment for 2011-2020	Pearson Correlation	,240**	,139	,512**	--						
	Sig. (2-tailed)	,008	,141	<,001							
	N	120	113	112	120						
Abs sales growth be 2008-2020	Pearson Correlation	,456**	,715**	,282**	,131	--					
	Sig. (2-tailed)	<,001	<,001	<,001	,163						
	N	117	152	151	115	159					
Rel sales growth be 2008-2020	Pearson Correlation	,242**	,481**	,561**	,258**	,291**	--				
	Sig. (2-tailed)	,010	<,001	<,001	,006	<,001					
	N	113	151	151	112	151	151				
Abs empl growth be 2011-2020	Pearson Correlation	,630**	,218*	,712**	,369**	,291**	,206*	--			
	Sig. (2-tailed)	<,001	,020	<,001	<,001	,001	,029				
	N	121	114	113	118	117	113	122			
Rel empl growth be 2011-2020	Pearson Correlation	,531**	,344**	,425**	,595**	,320**	,294**	,437**	--		
	Sig. (2-tailed)	<,001	<,001	<,001	<,001	<,001	,002	<,001			
	N	118	112	112	118	114	112	118	118		
Rel log sales growth timeseries 2008-2020	Pearson Correlation	,227*	,217**	,848**	,621**	,262**	,597**	,495**	,452**	--	
	Sig. (2-tailed)	,011	,007	<,001	<,001	<,001	<,001	<,001	<,001		
	N	123	153	151	120	159	151	122	118	203	
Rel log employment growth timeseries 2011-2020	Pearson Correlation	,425**	,175*	,422**	,215*	,188*	,391**	,590**	,726**	,573**	--
	Sig. (2-tailed)	<,001	,033	<,001	,019	,019	<,001	<,001	<,001	<,001	
	N	118	149	149	118	155	149	119	118	183	183

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

4.4 Selecting the Winners

Clustering the top x % of the firms in a sample to investigate their particularity is a technique used by many researchers. Often the top 1 %, 5 %, and 10 % are chosen for closer inspection, as done by e.g. Ughetto (2016) and Coad et al. (2014a). For the size of this sample, the top 1 % would only hold 2 firms (1 % = 2,03). As the top 5 % only contains 11 firms, any regulars across different measures would be noticeable. An assessment was therefore made not to make a top 1 % cluster. Meanwhile, both remaining clusters were investigated. The objective of this was to inspect how stable the occurrence in the top were for the best firms, and how this changed as the threshold was lowered. The top 5 % (n=10) is exclusive enough to only hold the very top-performing companies, consisting of a small elite. However, the cluster is likely too small in this sample to uncover the real performance drivers with adequate certainty. Therefore, the top 10 % was chosen as the primary cluster to inspect the ranking of the various growth measures, but also the top 5 % will be further investigated in parts of the analysis. Consequently, the Winners will later be defined as the top 10 % performing companies of one of the periods.

For every single growth measure across all three periods, two binary variables were constructed to inspect the stability in evaluated performance across the measures. These variables denoted the top 5 % and top 10 % performers, respectively, according to the given measure. The binary variables awarded a 1 to the firms qualifying as a top-performer (e.g., the top 10 %) and a 0 to the rest (e.g., the remaining 90 %). All binary variables from the same period could then be summed to create a total score reflecting the consistency of the top-placement for each firm across the different measures. E.g., for the 9 growth measures created for period 2014-2020, a firm recurring in the top 10% across all measures would then be awarded the maximum score of 9. From these cumulative sum variables, the top 5 % and top 10 % performers could then be selected.

There were two objectives to creating the cumulative sum variables: The first was to control that there was concurrence between the top-performers according to the different growth measures. This was done by inspecting the sum of the binary variables. Assuring this concurrence was crucial to ensure that a representative selection of growth measures could be made. Secondly, actually identifying the Winners was a fundamental preparation to the subsequent analysis. The basis to identify the particularities of the Winners arises from comparing them with the remaining firms. Thus, selecting the Winners as some top percentage of the cumulative sums ensured that these were consistent top-performers across various growth and performance measures.

Due to similar scores, there was some variation in the actual number of firms assigned status as a top 5 % and top 10 % performer. However, this was considered unproblematic, as the objective of assigning firms as top-performers was to derive common characteristics – not sift out the 20 best. Furthermore, there were no grounds to make a distinction between the last qualifiers as means to achieve equal number of firms across the periods. The number of firms and real percentages are shown in Table 2.

Table 2 – The number of firms assigned status as the top 5 % and top 10 % performers of the various periods

PERIOD	FIRMS IN TOP 5 %	FIRMS IN TOP 10 %
2008-2014	10 (Top 4.9 %)	21 (Top 10.3 %)
2014-2020	11 (Top 5.4 %)	24 (Top 11.8 %)
2008-2020	11 (Top 5.4 %)	27 (Top 13.3 %)

Table 3 and Table 4 shows the distribution of the cumulative scores the firms achieved from summing the top 10% and top 5% binary variables, respectively, for period 2014-2020. As seen in

both figures, drawing a line at 20 and 10 firms, respectively, would in both cases require excluding some firms with a score of 4 while others were included. Similar analysis was conducted for periods 2008-2014 and 2008-2020.

Table 3 – The frequencies of firms achieving the various top 10% total scores.

Cumulative score top 10% 2014-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	152	74,9	74,9	74,9
	1	7	3,4	3,4	78,3
	2	14	6,9	6,9	85,2
	3	6	3,0	3,0	88,2
	4	10	4,9	4,9	93,1
	5	3	1,5	1,5	94,6
	6	7	3,4	3,4	98,0
	7	3	1,5	1,5	99,5
	9	1	,5	,5	100,0
	Total	203	100,0	100,0	

Table 4 – The frequencies of firms achieving the various top 5% total scores.

Cumulative score top 5% 2014-2020

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	170	83,7	83,7	83,7
	1	7	3,4	3,4	87,2
	2	10	4,9	4,9	92,1
	3	5	2,5	2,5	94,6
	4	8	3,9	3,9	98,5
	5	2	1,0	1,0	99,5
	6	1	,5	,5	100,0
	Total	203	100,0	100,0	

Next, correlations between the binary variables and the cumulative sums were investigated. Perhaps unsurprisingly, these were well correlated, just like the growth measures they described (as reviewed in Figure 2). Thus, the variables could be considered as solid and could be used to select the Winners.

Before the Winners could be selected, a period had to be chosen as basis for the ranking. In this case there were three natural approaches: using the period before the survey (2008-2014), the period after the survey (2014-2020) or the entire period in which the survey is in the middle (2008-2020). The idea for the research method was then to compare the firms' performances in a chosen ranking period with the other options in order to uncover patterns and look for explanations in selected survey data. The different approaches could have been equally interesting. However, due to more complete dataset for all firms in the period after the survey, this was decided to use as basis for the ranking in this study. For the period from the survey in 2014 to 2020, where all companies had complete financial records (including possible exits or defaults). As for the period before the survey, the amount of data varied between the firms. An important source of this variation was that a number of firms were established between 2008 and 2014. This fact was also important to be aware of in the analytical approach. Therefore, the 9 growth measures for 2014-2020 were chosen as basis for ranking the performance of the firms.

Consequently, the Winners as the top 10 % performers over period 2014-2020 as denoted by their cumulative sum variable. For the remains of this paper, the top 10 % performers of period 2014-2020 will be called the Winners, while the top 10 % performers of periods 2008-2014 and 2008-2020 (who per definition are the Winners of their respective periods) simply will be called the top 10 % of their period. This is done to avoid confusion.

There is a possibility that some of the firms with missing values in reality belong in the top. Missing values affects the ability to be regarded as a top-performing firm, for which stability across all measures was required. However, the objective of the research was to identify traits of the top performers that are stable and common across the sample to explain their dominance. Thus, unless the method has resulted in exclusion of a high number of firms with very special characteristics, the effect on the findings is likely not significant as the traits are expected to be the same.

4.5 Selecting growth measures

The binary variables denoting the top-performers and the related cumulative sums are simplifications of the measurements of the firms' growth and performance. The information they contain is a number on a scale that are assigned each firm according to their performance relative to the other firms. For more insight and likely more findings in the analysis of the hypotheses, it was therefore desirable to include some growth measures that quantify the objective growth of the firms. Inspecting multiple growth variables with varying indicators and formulas of calculation reduces the effects of size bias and reflect different aspects of the firms (Delmar, 1997). However, performing analysis on a high number of growth measures makes it more difficult to identify patterns and draw firm conclusions. That is unless the results are particularly consistent, which is normally not the case. Thus, for the subsequent analysis of the complete dataset, it was desirable to have a lower number of growth measures. This implicated that some of the measures had to be cut or combined before proceeding to the data analysis. Low correlation between the constructed measures would have complicated things significantly, but luckily the high level of correlation found in 4.3 simplified the selection process.

Drawing on the literature, practice of scholars, and the previous discussion in 4.1, the following measures were selected to test for solidity:

- Birch Index for employment
- Relative point-to-point of sales growth
- Absolute point-to-point of sales growth
- Compound Annual Growth Rate (CAGR) for sales

Choosing classic growth measures has the advantage of both literary support and enabling comparison to a range of studies. According to the presented literature, the Birch Index is a good measure of societal value, as it favors job creators over fast-growers, making it a highly relevant measure to investigate the firms of greatest economic importance. Employment is the most common choice of indicator when using the index. Additionally, variation in calculation method and indicator ensures that different aspects of the firms are reflected. Choosing both absolute and relative measurement of sales growth provides information to balance the size-bias effects of the measure, as they skew the sample in opposite directions. Consequently, one might find that the results align with one of these measures and not the other, which provides interesting insight as grounds for reflection. Finally, it was considered both useful and interesting to include the CAGR for sales. While

the other measures have broad support in literature and research practice, CAGR is the most widely used measure in the financial sector. Due to the infrequent use of this measure in research, including the CAGR in the analysis makes it interesting to assess the degree of consistency with the more traditional measures.

Similar to the cumulative score variables previously described, two variables were created for the four selected measures for 2014-2020. These respectively held the cumulative score of the top 5% and the top 10% of the selected growth measures only, thus with a maximum score of 4. To test the solidity of these measures, correlation analysis was conducted. This included the corresponding variables based on all growth measures for the same period. High correlation would mean that the four selected variables were a good representation of the complete set of growth measures in.

The results are shown in Figure 4. The correlations (in bold) between the cumulative score based on all 10 measures and based on the chosen 4 are above 90% for both the top 5 % and the top 10 %. This implies that the firms at the top of the rankings building on all growth measures, i.e. the Winners, are largely the same as when only applying the selected 4 measures. Thus, the selected measures are a solid representation and will be used the analysis.

Figure 4 – Correlation based solidity test of chosen measures.

Correlations

		Cumulative score of top 5% of selected growth measures	Cumulative score of top 10% of selected growth measures
Cumulative score top 5% 2014-2020	Pearson Correlation	**,923**[**]	,748[**]
	Sig. (2-tailed)	<,001	<,001
	N	203	203
Cumulative score top 10% 2014-2020	Pearson Correlation	,787[**]	**,935**[**]
	Sig. (2-tailed)	<,001	<,001
	N	203	203

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

5 Method – Dataset

5.1 Initial data sample

The dataset used in this study builds on a survey conducted in 2014 by researchers at the Department of Industrial Economics and Technology Management, NTNU. The survey targeted the innovation focus, growth ambitions and internationalization of the population of Norwegian exporting SMEs with 4 to 250 employees. Using the *Kompass Norway*-database, 2 262 relevant firms from different industries were identified, and contact info was retrieved. All firms were sent the questionnaire with a cover letter by mail, as well as an e-mail with a link providing the option of online response. Reminders were sent by email or phone. The questionnaire was sent out in spring 2014 and data collection was finished in September 2014.

The questionnaire aimed to investigate the companies' ambitions and activities in relation to growth, innovation and internationalization and their outcomes. The questionnaire was developed stage-wise and refined according to procedures suggested in literature (Fowler, 2009, Anderson and Gerbing, 1988, Nunnally, 1978). A pilot test was conducted on 10 managers, entailing some final adjustments before the questionnaire was sent out. The questions were derived from literature and surveys published within the fields of relevance. A seven-point Likert-scale was employed for measurement, in addition to numerical input for specific information on certain measures such as export intensity.

The questionnaire was addressed to the top management team, requesting a response from the CEO or the individual with most knowledge on export operations. After removing two duplicates I identified upon reception, the survey yielded 378 usable responses (16,7% response rate). The responding firms were younger than the non-responders, but equal in size.

Finally, publicly available information on the financials for years 2008-2013 had been added to the dataset for each company, along with data on their respective industries. This was the dataset I received at the start of the work on the present paper. The dataset has previously been used in studies by Knight et al. (2020) and Azari et al. (2017).

5.2 Modified data sample

To match the purpose of the present study, certain changes and additions have been made to the initial dataset. This includes conducting a quality assurance process and adding newer financial data. Finally, a smaller selection of the complete dataset was chosen for the present study.

Quality assurance

The first task upon receiving the dataset was to conduct a general quality assurance scheme of the complete dataset. First, the dataset was checked for obvious errors. This entailed looking over all data and noting suspicious values (e.g., 750 000% where most respondents stated something around 30%). Next, both descriptive statistics and frequencies were investigated for every variable to check that the values were within the allowed range where such applied (usually the 1-7 Likert-scale) and catch suspicious outliers. Some excess data was removed (e.g. 0 that should have been blanks) and some logical errors were corrected. The latter particularly applies to the exporting percentages requested in question 816, where the four-part question asked for cumulative percentages. This had evidently been misunderstood by many respondents, and was corrected where possible. E.g., a

company could state that 70% of sales were in Norway, but state sales of 0% in the boxes for *Nordics (incl. Norway)* and *Europe (incl. Nordics)*, which then both should have been 70%. Mistakes like these were corrected. All changes and corrections were logged, see *Appendix A3: Correction log*. A few companies were missing year of establishment. These were looked up by organization number in the national company register Brønnøysundregisteret, and the data was added to the dataset. The same was done for every company stating year of establishment earlier than 1900 to double check for keyboard-errors.

Additions

The data from the questionnaire was supplemented by financial information on each company for years 2013-2020, retrieved from *Proff Forvalt*. This allows assessment of the subsequent growth and performance development in light of the data from the questionnaire. Combined with the existing data in the database, this provides considerable amounts of information to conduct thorough analysis on growth and performance. As the data retrieval was done in January 2022, only a handful of companies had submitted financials for 2021. Therefore, 2021-financials were not included in the dataset. Thus, the final sequence of data spanned over the period from 2008 to 2020.

Export data was not publicly available but was ordered from *Proff Forvalt* and added to the database. The received order contained information on export over the period from 2006 to 2021 for 132 of the 278 companies, and was structured in the following categories: Export to the Nordics, Europe, Remaining Countries, and Total Export. Most of the companies only had data for 2008-2020, which matched the years of financial data already in the dataset. Thus, export numbers for this period were imported to the dataset. An important note regarding the received export data is that the amount of data varied greatly between the firms and from year to year.

Finally, the financial data and export numbers were converted to SPSS-files and merged with the database by sorting on organization number.

Making a selection of the companies

In line with the aim of this study, which is to identify characteristics of the top-performing Born Globals, it was decided to use a selection of the described dataset. A line was drawn for year of establishment no earlier than 1980. As a result, the number of companies in the dataset was nearly cut in half – going from 378 to 203 firms.

BGs were first described in literature in the early 90's (Rennie, 1993, Oviatt and McDougall, 1994, McDougall et al., 1994), often describing fast-growing firms established in the 80's (e.g., Gallagher and Miller, 1991). This was a new phenomenon at the time, which suggests that companies much older than this certainly will not qualify to the group. Thus, including companies older than 1980 does not add value to the study of BGs.

Meanwhile, since the 80's there has been technological advances in various areas of business, creating new opportunities, facilitating management of global corporations, and lowering costs. Paired with lower trade barriers as drivers of globalization, the market conditions have changed considerably since 1980. This has been observed the increasing number of BGs. A reasonable question is therefore whether the common traits of top-performing newer BGs have evolved with the changing conditions. This suggests that looking at only the youngest, e.g. firms established after

year 2000, may uncover more relevant results. The problem with doing so, is that the remaining dataset would hold less than 38 firms (10% of the original dataset), severely affecting the generalizability and generalizability of the results. Therefore, it was opted to employ 1980 as the limit for inclusion, as a balance point between relevance and adequate sample size for generalizability.

5.3 Statistical method

The following statistical methods were applied in the analysis. Methodological descriptions for the testing of each hypothesis will be provided in chapter 6. This chapter describes the various methods and their objectives, as well as specific SPSS-settings wherever such choices were necessary.

Standardized variables

In an effort to structure the analysis and retrieve results for comparable groups, a few choices for standardization were made early on in this paper. These have already been outlined but will be summarized here. The following was standardized:

- Period 2014-2020 is used as the standard period. The period 2008-2014 then provides historical information, while calculations over the entire timeseries 2008-2020 allows inspection of long-term developments.

- The Winners are defined as the top 10% firms of 2014-2020. Their selection is based on the total cumulative score of all the growth measures for the period 2014-2020.

- CAGR for sales, Birch Index for employment, and absolute and relative sales growth are consistently used as measures of growth, all calculated for the standard period 2014-2020. The selected growth measures were tested for viability and representativity in chapter 4.

Transformations

- *Compute variable*

The compute variable was used to create variables for which calculation was needed, often including numbers from other variables. Furthermore, this was used to create scales and combine variables. All efforts were scaled (i.e., calculated as average of the variables) to match the 7-point scale used in the questionnaire.

- *Recode (into different variables)*

Recoding was used for flipping the scores of variables before these could be used as a component in a scale. When creating scale, the positive direction of all the questions be the same, e.g. that maximum score is best outcome for all questions. Most questions in the questionnaire were positively worded and applied a 7-point Likert-scale, meaning that a score of 7 was 'best'. However, a few questions were negatively worded, such as "Q407: When an employee makes a mistake, it is

held against him/her", thereby making 7="Completely agree" the worst score. These questions had to be recoded before included in scale building efforts.

Analyses

- *Crosstabs*

The simplest analysis used in the present study is crosstab analysis. This is a descriptive statistics method that creates contingency tables. As an example, crossing the variable denoting the Winners with the variable denoting the DBG-clusters provides an overview of how the Winners are distributed across the clusters.

- *Bivariate Correlation*

Testing correlations between variables was a frequently used method to analyze the hypotheses. Bivariate correlation analysis tests to uncover simple, linear connections between the variables. The results are presented in a correlation matrix holding the pair-wise correlation between all included variables. Naturally, many variables result in a large matrix. For many instances, the correlation between two sets of variables were of interest. These matrices were simplified by inserting WITH into the syntax between the groups to omit redundant information.

In the matrix, significant correlations are marked with one or two asterisks depending on level of significance (sigma of 0.05 or 0.01, respectively). This indicates a correlation that is not random. The correlation coefficient signals the degree of co-movement between the variables, ranging from -1 to 1, with a perfect negative or positive linear relationship as the extremes. A positive sign indicates that the variables move in the same direction; a respondent stating a high value for one variable also states a high value to the other. Oppositely, a negative sign indicates that a high value in one variable is followed by a low value in the other. The coefficient values denote the strength of the relationship. Normally, absolute values above 0.50 are considered strong. Absolute values between 0.30 and 0.50 are considered moderate correlations, while values below 0.30 are weak.

- *K-means Cluster analysis*

K-means Cluster analysis is used to investigate whether the respondents can be grouped together in a number (K) of distinctive groups. The logic is to gather respondents into groups based on similarities in the chosen grouping variables. E.g., to cluster firms in terms of degree of Born Globalness, it would be natural to include scale and scope of internationalization as grouping variables. Ideally, the resulting clusters are distinctively different from each other in the chosen variables, while the objects within the clusters are largely similar. Factor analysis is often used prior to the clustering, to reduce the number of cluster variables into a few smaller dimensions and subsequently group the companies based on these.

It is up to the analyst to interpret the meaning of each cluster. For K-means cluster analysis, the number of clusters must be decided beforehand. Thus, a central task is to evaluate whether the number of clusters seems appropriate based on their degree of similarity. To control of this, all cluster analyses were performed with variation in the number of clusters. The resulting clusters were saved in a separate variable and used in subsequent analyses.

- *Factor analysis and Cronbach's alpha*

When testing a hypothesis based on a questionnaire, there is often a set of several questions that target the same overarching theme (e.g. growth ambition) from different angles. This enables reflecting different aspects of the topic in a way that a single question could not. To investigate the topic in analysis, it is then useful to combine the relevant questions into some main factors in the form of one or more scales.

Creating scales provides a more robust measure of the topic, at the same time as it simplifies the analysis. Plans for scales are often a part of preparing a questionnaire, as this is a good way to investigate a topic through several questions. However, as the respondents' answers affect which questions fit together in a scale, the final scales may not contain all the planned questions.

Conducting a factor analysis is a tool to help dividing variables into scales, as well as an indication of the number of scales. Furthermore, it is useful for controlling how much information is lost from combining the variables and excluding others. A key metric in the factor analysis is Cronbach's alpha. It is a measure of internal consistency, signaling how closely related the set of variables are as a group. Therefore, it is considered a measure of the scale's reliability. As a rule of thumb, Cronbach's alpha should be above 0.70 for the scale to be considered sufficiently reliable.

For all factor analyses applied in the method of this study, the settings were set to varimax rotation and to suppress small coefficients with absolute value below 0.50. In the results, the rotated component matrix in the results provide a suggestion of how to group the variables into one or more scales. Interpreting the split and finding common traits is up to the analyst (e.g., splitting a growth ambitions scale into international and general growth ambitions). The matrix also illustrates which variables may be excluded due to low internal consistency and/or contribution to the suggested scale. Furthermore, the results provide a table stating how much of the total variance is explained by each variable. A few variables will often dominate, suggesting that eliminating the remaining will not affect the quality of the scale.

- *One-way ANOVA*

One-way Analysis of Variance (ANOVA) is a method of analysis to test differences between groups. The test compares the means of three or more independent variables to determine whether they are statistically significant when split into groups based on a dependent variable (e.g., degree of Born Globalness-cluster). As the ANOVA only provides whether a statistically significant difference is identified, a post-hoc test is needed to see which variables this is for. For all the conducted One-way ANOVA analyses, Bonferroni was selected as post-hoc test and descriptives included for more information.

- *Independent Samples T-test*

Another method to test differences between groups is the Independent Samples T-test. This allows the possibility of defining groups and comparing them directly. The test looks for statistical differences between two groups, where one is the dependent (test) variable, and the other is the independent (grouping) variable. The test variable must be continuous. The grouping variable must have exactly two categories, e.g., like binary variable called The Winners, or selecting two clusters from the degree of Born Globalness variable to compare these in isolation. The results table offers results for the assumption of equal variances, and for when this cannot be assumed. Equal variances assumed when the variances are roughly similar, in practice usually limited to within 50% of each other. The advantage of the assumption is more precise estimates (when valid).

- *Linear regression analysis*

Regression analysis is used to investigate how one or more independent variables influence a dependent variable. The regression analyses in this study were conducted as stepwise linear modelling. This method conducts step-by-step iterations that aim to include significant variables only and exclude the remaining, before arriving at a final model. The method allows to simultaneously examine the plausible effect of a range of variables on the dependent variable, and reduce this list to a smaller selection of the most influential variables.

The results provide a table of the significant variables. The adjusted R square denotes how much of the variation in the dependent variable is contributed by each significant variable. The Beta-coefficients denoted the direction of the relationship and strength of co-movement. To understand the relationship, the sign should be interpreted in context of the wording of the variables' questions (i.e., whether a score of 7 the 'best' in both questions, or if the scale is turned for one of the questions).

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6 Statistical analysis and results

The previous chapter provided an overview of the various statistical methods applied throughout the study, detailing the use of the different approached. In the present chapter, the statistical methods used to test each hypothesis will be presented, directly followed by the results, for one hypothesis at a time. Wherever complete results from the analyses are not included, these are found in the Appendix, sorted under the respective hypotheses.

The statistical analyses were conducted using IBM SPSS Statistics version 28 (Armonk, NY). The dataset consisted of 203 Norwegian exporting Small-Medium Enterprises (SMEs). Descriptives of the dataset can be found in Table 5. As of January 2022, the operational statuses of the firms were as follows: 158 (77.8%) are still active, while 9 (4.4%) have gone bankrupt. The remaining were either dissolved (7 firms, 3.4%) or deleted from the registry (29, 14.3%), in most cases following a terminal exit or an acquisition.

Table 5 – Descriptives of the dataset

		The Winners (top 10%, n=24)		The remaining firms (90%, n=179)		All firms (n=203)	
Year of Establishment	Mean	1994		1992		1992	
	- Std.deviation	9		7		7	
	Median	1994		1991		1991	
	- Maximum	2013		2013		2013	
	- Minimum	1981		1980		1980	
	N	24		179		203	
No. of Employees	Year	2014	2020	2014	2020	2014	2020
	Mean	50	93	29	26	31	36
	- Std.deviation	66,368	112,386	44,370	38,556	47,820	60,840
	Median	25	59	14	13	14	17
	- Maximum	241	431	240	265	241	431
	- Minimum	2	1	0	0	0	0
	N	24	24	178	134	202	158
Total revenue (1000 NOK)	Year	2014	2020	2014	2020	2014	2020
	Mean	400 721	744 000	101 436	94 492	138 461	189 542
	- Std.deviation	681 951	1 185 986	220 373	226 050	328 187	543 205
	Median	125 026	338 677	34 348	32 869	37 038	42 896
	- Maximum	2 827 513	4 695 890	1 906 512	1 919 457	2 827 513	4 695 890
	- Minimum	1549	19 461	5	-	5	-
	N	24	24	170	140	194	164
No. of years before first export	Mean	2,94		3,97		3,84	
	- Std.deviation	3,765		10,264		9,689	
	Median	1,50		3,00		3,00	
	- Maximum	12		28		28	
	- Minimum	0		-88		-88	
	N	18		126		144	
No. of Countries exported to in 2013	Mean	10,60		10,41		10,44	
	- Std.deviation	12,356		14,303		14,013	
	Median	6,00		5,00		5,50	
	- Maximum	55		100		100	
	- Minimum	1		0		0	
	N	20		126		146	
Export share	Mean	49,42		45,30		45,83	
	- Std.deviation	34,228		35,185		34,979	
	Median	40,00		44,00		42,00	
	- Maximum	100		100		100	
	- Minimum	1		0		0	
	N	19		131		150	

A few interesting observations can be made from the descriptives in Table 5. The differences between the Winners and the remaining firms in sales and employment growth are astounding. The average CAGR of the total revenue for the entire sample is 5.37 %. In contrast, the Winners growth rate is the double of this at 10.86 %. Without their contribution, the growth of the sample would have been negative, as demonstrated by the remaining firms. In terms of employment levels, the Winners grow by 86.0 % compared to the sample average of 16.1 %.

In terms of Born Global-related characteristics, the sample results are less indicative. The difference in the number of countries exported to and the export share is minimal. Though all firms in the sample are exporters, these metrics are more even than expected. Meanwhile, the Winners on average internationalize a year earlier than the rest of the sample.

6.1 Financial analysis

H1a – Growth curve plots

The first hypothesis states that the Winners persistently display higher growth than the remaining firms. To investigate this, two analyses were conducted. It was chosen to create plots to visualize the firms' sales growth. In addition, an Independent Samples T-test was run on the year-by-year sales growth to inspect how often there were significant differences in annual growth rates between the Winners and the other firms.

Method

The plot of sales growth was conducted in Excel. The sales growth, dSales, was calculated as a logarithmic growth rate on a year-by-year basis. This had already been computed as part of the process to calculate the log relative timeseries sales growth measures. Therefore, the dSales-formula equals the expression inside the summation used to calculate the relative timeseries growth rate (Equation 5), presented in 4.2 *Growth calculation formulas*. I.e.:

Equation 6 – Annual logarithmic relative growth

$$dSales_T = \ln(sales_{T+1}) - \ln(sales_T)$$

$$denoting\ the\ sales\ growth\ in\ year\ T$$

The choice of logarithmic growth was essential to create a readable plot. With logarithmic differences, a small positive or negative growth will be close to zero. However, extreme changes will not be assigned disproportionally large values and create an unreadable plot. E.g., 10% growth gives a value of about 0.1, while a 271% growth (the natural logarithm e=2,71) gives a value of 1. Notably, this means that larger variations in the plot in reality are even more extreme, as the logarithmic calculation employs a dampening effect. Furthermore, as this is a relative growth measure, it enables comparison of the firms' developments. Together, this enabled plotting all firms despite large variations in sales development.

Based on the cumulative growth score-variable (of which the Winners are the top 10%), a binary variable holding the Winners was constructed where Winners were denoted by a 1, and thus remaining 90% were denoted by a 0. As small number of firms with the same score were fighting for the last spots, all had to be considered Winners. Thus, the Winners became somewhat larger than 10% (n=24 for 2014-2020). As the objective of plotting the growth curves was to look for general trends, this was considered unproblematic.

The data was split into the Winners and the remaining 90%. Average annual growth, as well as max and min values, were computed year-by-year. This was also done for the entire sample of n=203 firms. The values were calculated using the built-in aggregate-function in Excel to ignore missing values. The commando used was (= AGGREGATE(x; 6; cells)), where 6 orders to ignore missing values. The value of x was 1 for the average calculations, 4 for *max*, and 5 for *min*. The resulting year-by-year averages were then plotted in a line diagram, illustrating the average growth curve of the Winners, the other firms, and the entire sample.

Additionally, an Independent Samples T-test was run on the year-by-year logarithmic sales growth values, with the Winners as the testing variable. The timeseries growth measures were also included for the three periods 2008-2014, 2008-2020, and 2014-2020. The objective of was to whether the observable differences in average growth rate also were significant on firm-level between the Winners and the remaining firms, both on annual basis and for the three timeseries.

Results

Figure 5 shows the development of annual sales growth over the period 2008-2020. The solid blue line portrays the development of the Winners (the top 10% of period 2014-2020). The orange line illustrates the remaining 90% of firms.

Figure 5 – The Winners vs the other firms: Average annual LN Sales growth 2008-2020
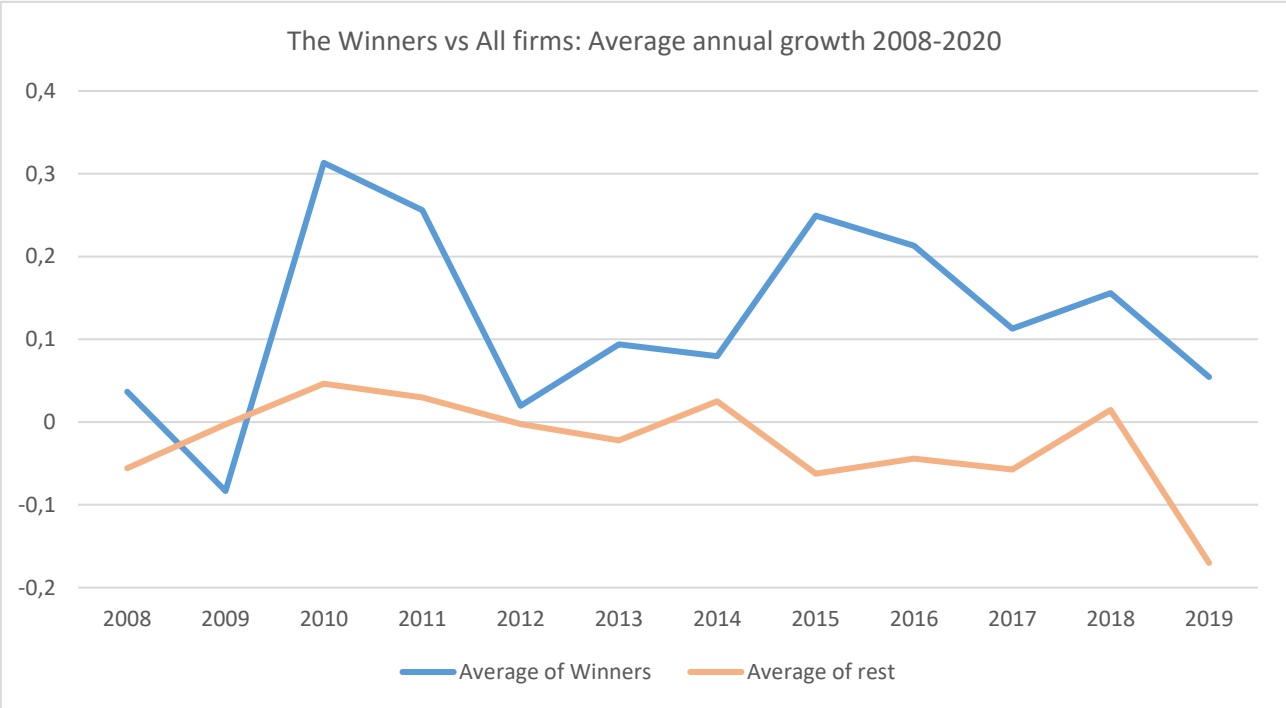
The plot shows that the Winners' display a consistently higher growth over time than the other firms. The only exception is 2009, in which the economy was heavily affected by the financial crisis. The observed overall pattern still shows that the Winners outperform the remaining firms. It should be noted that the y-axis represents annual sales growth measured logarithmically, meaning that the differences in NOK are increasingly larger with larger LN-differences.

The elevation of the Winners' growth rate was confirmed by the T-test. The test results, which are attached in the Appendix, showed large differences in mean growth values of the Winners compared to the other firms. The difference on annual basis was significant for 6 out of 12 years when equal

variances are not assumed. This was for the growth in years 2015 to 2019 and in 2011. For the timeseries growth measures (2008-2014, 2014-2020, and 2008-2020), significant differences (0.05-level) were found for all three measurement periods.

Thus, the Winners consistently outperformed the other firms in growth over the entire 13-year timeseries, supporting hypothesis 1a.

H1b – Profitability

The second hypothesis states that profitability is a prerequisite for high growth. The Winners were used to represent the high-growth. To investigate the profitability of the firms, two key financial metrics were used: Operating margin and Return on Investment (ROI). Both metrics are widely used measures of profitability. These were tested in a correlation analysis against the Winners and the four selected growth measures from 4.4. The correlation analysis was conducted to investigate whether there are significant associations between firms' growth and profitability. Subsequently, an Independent Samples T-Test was done to quantify the differences in profitability for the Winners and the other firms, and investigate their significance. Together, this provides a picture of the how a firm's growth relates to its profitability, and whether the hypothesized relation is true for the Winners.

Method

Data on Operating margin and Return on Investment (ROI) had been retrieved with the financial records from Proff Forvalt. The formulas for calculating these metrics are attached in the Appendix. The dataset contained these metrics for every year of the timeseries where a given firm had financial records. In the testing of the hypothesis, it was decided to use only a selection of these figures. This was done to simplify the analysis and more easily see general patterns. The mentioned figures were included for years 2014 and 2020, as the endpoints of the standardized period, as well as the value in 2008 to examine the historical development.

The hypothesis was tested using correlations and Independent Samples T-test. For the T-test, the binary variable denoting the Winners was used as the grouping variable (Winners=1, others=0). This was tested using ROI and Operating margins for 2008, 2014, and 2020 as test variables. The same test variables were used in a correlation analysis against the Winners and the four selected growth measures.

Results

The results of the correlation analysis are shown in Figure 6. Interestingly, a low but significant negative correlation (at the 0.05-level) was found for the Return on Investment (ROI) for the Winners in 2008, while the other firms displayed a positive ROI the same year. No significant correlations were found for the employment measure. Furthermore, while there were no significant correlations for absolute sales growth, a significant correlation was identified between relative sales growth and the ROI in 2020 (at the 0.01-level). Both ROI and Operational Margin for 2020 were significantly correlated with CAGR based on sales (both at the 0.01-level), with the former being relatively strong (0.53). This is not an unexpected result, given that both metrics have formulas where with sales-related metric in the numerator. Thus, firms with a positive development in sales are likely to see a positive development in all three metrics. Meanwhile, Operational Margin has a denominator that is also affected by sales, which explains why this metric is somewhat less affected.

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Figure 6 – Correlation matrix for profitability measures

Correlations

		ROI 2020	ROI 2014	ROI 2008	Operating Margin 2020	Operating Margin 2014	Operating Margin 2008
The Winners (top 10% 2014-2020)	Pearson Correlation	,134	,038	-,181[*]	,057	,034	,029
	Sig. (2-tailed)	,092	,596	,011	,471	,636	,685
	N	159	194	198	163	193	198
Birch Index employment growth 2014-2020	Pearson Correlation	,043	,027	-,058	,021	,040	,001
	Sig. (2-tailed)	,599	,736	,477	,794	,618	,991
	N	149	157	153	153	157	153
CAGR sales for 2014-2020	Pearson Correlation	,531[**]	,003	-,027	,203[**]	,017	,010
	Sig. (2-tailed)	<,001	,972	,736	,009	,830	,897
	N	159	164	159	163	163	159
Abs sales growth be 2014-2020	Pearson Correlation	,051	-,008	,016	,041	,017	,008
	Sig. (2-tailed)	,522	,918	,846	,600	,830	,921
	N	159	164	159	163	163	159
Rel sales growth be 2014-2020	Pearson Correlation	,218[**]	-,064	-,054	,117	-,030	-,028
	Sig. (2-tailed)	,006	,413	,497	,138	,707	,721
	N	159	164	159	163	163	159

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

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

The Independent Samples T-Test results table shows significance below the allowed threshold of p-value 0.05 only for ROI 2020 and 2008. As a rule of thumb, the variances of the two groups in the T-test (in this case Winners and Others) should not differ by more than 50% to be considered equal. As this criterion is not met, equal variances cannot be assumed. This leaves only the ROI 2020 as significant. Descriptive statistics for this variable are given in Table 6 – Results.

Table 6 – Results of T-test of profitability metrics

Group Statistics

	The Winners (top 10% 2014-2020)	N	Mean	Std. Deviation	Std. Error Mean
ROI 2020	Winners	24	14,137765222	22,661258720	4,6257100662
	Others	135	2,9091037172	30,936025847	2,6625491756
ROI 2014	Winners	24	12,663351191	13,350779065	2,7252163647
	Others	170	9,0920702350	32,529644552	2,4949098471
ROI 2008	Winners	23	-23,5696	175,22525	36,53699
	Others	175	12,9977	26,97161	2,03886
Operating Margin 2020	Winners	24	3,5245536045	28,649383114	5,8480308395
	Others	139	-9,907793128	90,177371617	7,6487448313
Operating Margin 2014	Winners	24	3,0835331809	16,410709330	3,3498220147
	Others	169	-107,1132756	1135,7626291	87,366356081
Operating Margin 2008	Winners	23	4,4130	10,01291	2,08784
	Others	175	-3,1063	88,44282	6,68565

Table 6 (cont.) – Results of T-test of profitability metrics

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
						Significance					
						One-Sided p	Two-Sided p				
		F	Sig.	t	df			Mean Difference	Std. Error Difference	Lower	Upper
ROI 2020	Equal variances assumed	,094	,759	1,697	157	,046	,092	11,228661505	6,6164412049	-1,840061461	24,297384471
	Equal variances not assumed			2,104	40,011	,021	,042	11,228661505	5,3372616320	,44174762550	22,015575385
ROI 2014	Equal variances assumed	1,912	,168	,531	192	,298	,596	3,5712809563	6,7307674040	-9,704461055	16,847022968
	Equal variances not assumed			,967	70,929	,169	,337	3,5712809563	3,6947773113	-3,796023202	10,938585115
ROI 2008	Equal variances assumed	16,969	<,001	-2,577	196	,005	,011	-36,56728	14,18817	-64,54835	-8,58621
	Equal variances not assumed			-,999	22,137	,164	,328	-36,56728	36,59383	-112,43098	39,29642
Operating Margin 2020	Equal variances assumed	,560	,455	,722	161	,236	,471	13,432346733	18,609190437	-23,31723312	50,181926590
	Equal variances not assumed			1,395	113,593	,083	,166	13,432346733	9,6282273652	-5,641829778	32,506523243
Operating Margin 2014	Equal variances assumed	,815	,368	,474	191	,318	,636	110,19680876	232,36002777	-348,1245139	568,51813147
	Equal variances not assumed			1,260	168,492	,105	,209	110,19680876	87,430552339	-62,40363900	282,79725653
Operating Margin 2008	Equal variances assumed	,708	,401	,407	196	,342	,685	7,51933	18,49739	-28,96013	43,99879
	Equal variances not assumed			1,074	194,930	,142	,284	7,51933	7,00407	-6,29415	21,33281

Looking at the formula for ROI, this metric can be interpreted as how much return is created for each unit of capital used, i.e. how many kroner comes out from each krone invested. There are two explanations for the negative relationship identified in 2008. One is that the Winners had lower profit than the remaining firms. This could suggest that they are found in cyclical industries, or that made heavy investments in this period – possibly related to the financial crisis. The other is that the Winners are mainly found in capital and asset intensive industries, causing the denominator to increase relative to the other firms.

Meanwhile, the results of the T-test show a high positive correlation between the CAGR sales and the ROI 2020. Seen in relation to the negative correlation with the Winners from 2008, this indicates that the Winners are found in industries that have been fast-growing since 2008. Furthermore, equal variances cannot be assumed for the T-Test, thereby rendering the ROI 2008 as insignificant with regard to differences in mean value. Based on the diverging results, it seems that the year 2008 maybe should be disregarded.

Based on the findings from the above analysis, there is not enough evidence to support the hypothesis. The evidence connected to year 2020 shows that the Winners have high profitability and high growth, and a significantly better ROI than the remaining firms. Meanwhile, there evidence from the remains of the analysis does not show the same indication. Thus, the hypothesis is rejected.

H1c – Performance persistence

Hypothesis 1c states that the Winners display consistently high performance across the complete timeseries. To test the persistence in the Winners' performance, a natural approach was to examine the stability in performance over time. High performance persistence would suggest that a high number of the Winners also occur among the top performers for other time periods. As the Winners were selected based on their performance over the period 2014-2020, the available information in the dataset provided two prevailing options. The first was to investigate historical performance for period 2008-2014 to examine the precursory developments of the firms that later became Winners. The second was to study developments over the entire timeseries, 2008-2020 to obtain an overall picture of the long-term development. As the options provide different insight, it was decided useful to do both.

To test the hypothesis, a bivariate correlation analysis was tested followed by an Independent Sample T-Test. The tools provided different insight that together allows creating a picture of the degree of persistence in the Winners' performance. In the scenario that the Winners recurringly claim placings among the top-performers of other periods, a correlation analysis will show high correlation between the measures denoting this grouping. A subsequent Independent Samples T-Test would then quantify the differences, while a crosstab analysis quantified the number of recurring firms across the top x%-metrics.

Method

Correlations

As outlined in chapter 4, all growth measures were calculated for all three periods (2008-2014, 2008-2020, 2014-2020). For the performance persistence analysis, a cumulative score variable for each period was made based on the four selected growth measures (i.e., a variable summing the binary top 10 % variables of the selected growth measures, with maximum score of 4). This corresponds to the method that was used to select the Winners for period 2014-2020 (see 4.4). As previously stated, the cumulative score variables sum the binary variables holding the top 10% of each growth measure (summarized in Table 1). Simply put, it expresses in how many of the various growth measures a given firm is among the top 10%. In this case, the growth measures referred to are the standard selection of the Birch Index for employment, CAGR sales, and relative and absolute sales growth. The objective of using these score variables was to obtain a more nuanced measure of the firms' performance across the periods. Inspecting multiple growth variables with varying indicators and formulas of calculation reduces the effects of size bias and reflect different aspects of the firms (Delmar, 1997). Therefore, such cumulative variables are used instead of a single growth measure, as they provide a more thorough assessment of performance.

The relationships between the Winners and the cumulative score variable of 2014-2020 were tested against those for the other periods using bivariate correlations. This allowed investigating the Winners' persistence as top performers across the different measurement periods.

Independent Samples T-Test

For the T-Test, the selected growth measures and the variables denoting the top-performers for the other periods were tested for significant differences in the mean values. The binary variable called The Winners was used as grouping variable, distinguishing between the Winners and the remaining

firms (called 'Others' in the results). The four selected growth measures for both periods 2008-2014 and 2008-2020 were fed into the samples test, denoting a total of 8 independent test variables.

Crosstabs analysis

To further investigate the relationships identified in the correlation analysis, a crosstab analysis was conducted on the Winners vs the top 5% and top 10% of the two other periods. This was done to retrieve the numbers of firms in recurringly claiming the top spots across the measures. The top 5% and top 10% of period 2008-2014 and the entire timeseries were crossed against the Winners.

As explained in 4.4, there is some variation in number of firms given a value of 1 in the top 5% and top 10%, respectively, for the different periods. This is due to equal scores for several firms fighting for the last spots in these variables. While this means that the real percentages have some variation (the variables named top 10 % in reality range from 10.3-13.3 %, and the top 5 % from 4.9-5.4 %), this is not considered problematic for the analysis at hand as the objective is to get a sense of the overall developments.

Results

Correlations

The correlations between the cumulative growth score-variables are shown in **Feil! Fant ikke referansekilden.**. A strong correlation of 0.578 was identified between the binary variable denoting the Winners (top 10% 2014-2020) and the cumulative score for the entire data period 2008-2020. Meanwhile, no significant correlation was identified for the corresponding score variable for 2008-2014. Significant correlations were found between the cumulative score of the Winners and the corresponding score variable for both investigated periods. Also these correlations were strong, with a value of 0.692, for the complete timeseries 2008-2020. Meanwhile, it was only 0.186 for the period 2008-2014. These results suggest little coherence between a firm's performance before and after 2014. Naturally, the correlations coincide with those identified between the binary variables denoting the top-performers. This table can be found in the Appendix. This showed a connection between which firms were top-performers in the overall period and the respective sub-periods. However, no significant correlation was found between the top-performers of the first period, 2008-2014, and the subsequent period 2014-2020.

Figure 7 – Correlations between the cumulative score of the top 10% for each measurement period

Correlations

		Cumulative score of top 10% of selected growth measures 2008-2020	Cumulative score of top 10% of selected growth measures 2008-2014
The Winners (top 10% 2014-2020)	Pearson Correlation	,578**	,127
	Sig. (2-tailed)	<,001	,070
	N	203	203
Cumulative score of top 10% of selected growth measures 2014-2020	Pearson Correlation	,692**	,186**
	Sig. (2-tailed)	<,001	,008
	N	203	203

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

Independent samples T-test – growth measures

The T-test identified significant differences in the means of the Winners compared to the remaining firms for several variables. For the entire period of the dataseries, spanning 2008-2020, all four growth variables had p-values below 0.050 and were found significant. For 2008-2014, only Absolute sales growth was found significant. The mean values of the Winners-group and the remaining firms can be found in Table 7. As seen in this table, the differences in mean values are large. Meanwhile, the standard deviation is also rather large for the Winners, which may not be surprising given that the group possibly holds very different firms.

Table 7 – Group statistics: Mean differences in the growth measures for the Winners vs the remaining firms

Group Statistics

	The Winners (top 10% 2014-2020)	N	Mean	Std. Deviation	Std. Error Mean
Birch Index employment growth 2011-2020	Winners	16	83,5884	83,44088	20,86022
	Others	107	9,4835	20,30894	1,96334
CAGR sales for 2008-2020	Winners	20	,10933	,064259	,014369
	Others	131	-,01610	,157148	,013730
Abs sales growth be 2008-2020	Winners	23	532157,3043	815602,02116	170064,77755
	Others	136	2818,5221	362117,07287	31051,28283
Rel sales growth be 2008-2020	Winners	20	3,3209	3,47276	,77653
	Others	131	,5531	1,73601	,15168
Birch Index employment growth 2011-2014	Winners	16	5,6108	28,84754	7,21188
	Others	135	3,4819	17,76207	1,52872
CAGR sales for 2008-2014	Winners	20	,06138	,134979	,030182
	Others	159	,01228	,140634	,011153
Abs sales growth be 2008-2014	Winners	23	173907,3478	273785,56750	57088,23719
	Others	166	5505,5241	302344,43888	23466,47952
Rel sales growth be 2008-2014	Winners	20	,7176	1,17146	,26195
	Others	159	,4022	1,35053	,10710

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p			Lower	Upper
Birch Index employment growth 2011-2020	Equal variances assumed	139,592	<,001	7,901	121	<,001	<,001	74,10488	9,37923	55,53621	92,67354
	Equal variances not assumed			3,537	15,267	,001	,003	74,10488	20,95241	29,51374	118,69601
CAGR sales for 2008-2020	Equal variances assumed	2,080	,151	3,516	149	<,001	<,001	,125423	,035667	,054944	,195901
	Equal variances not assumed			6,311	61,985	<,001	<,001	,125423	,019874	,085695	,165150
Abs sales growth be 2008-2020	Equal variances assumed	23,980	<,001	5,173	157	<,001	<,001	529338,78229	102320,99714	327235,45759	731442,10699
	Equal variances not assumed			3,062	23,487	,003	,005	529338,78229	172876,28735	172126,83398	886550,73060
Rel sales growth be 2008-2020	Equal variances assumed	14,999	<,001	5,648	149	<,001	<,001	2,76771	,49008	1,79931	3,73611
	Equal variances not assumed			3,498	20,473	,001	,002	2,76771	,79121	1,11972	4,41570
Birch Index employment growth 2011-2014	Equal variances assumed	3,294	,072	,420	149	,338	,675	2,12892	5,06867	-7,88685	12,14468
	Equal variances not assumed			,289	16,375	,388	,776	2,12892	7,37213	-13,47029	17,72812
CAGR sales for 2008-2014	Equal variances assumed	,837	,362	1,478	177	,071	,141	,049091	,033225	-,016476	,114658
	Equal variances not assumed			1,526	24,488	,070	,140	,049091	,032177	-,017249	,115431
Abs sales growth be 2008-2014	Equal variances assumed	3,249	,073	2,530	187	,006	,012	168401,82373	66552,94636	37110,76108	299692,88638
	Equal variances not assumed			2,728	29,949	,005	,011	168401,82373	61723,11144	42337,35022	294466,29724
Rel sales growth be 2008-2014	Equal variances assumed	,130	,718	,998	177	,160	,320	,31545	,31613	-,30842	,93932
	Equal variances not assumed			1,115	25,797	,138	,275	,31545	,28300	-,26648	,89738

Crosstabs and T-Test – Top x % variables

The results of the T-test with the top 5% and top 10%-variables showed the same pattern as the T-Test on the growth variables: The top 5% and top 10% of period 2008-2020 were significant, while those for 2008-2014 were not. The test significance table and group statistics are found in the Appendix.

With the winning firms being denoted by 1, and the remaining by 0, the mean values may of the winner-groups in the results table may be interpreted as the percentage of the top 5% and 10%, respectively, recurring in the Winners of 2014-2020. These results coincide with the results of the crosstabs analysis, which quantifies the number of firms recurring in the top of the inspected metrics.

Taking the period before the Winners first, the results of the crosstabs showed that 2 out of the 10 best firms and 4 out of the 21 best firms over the period 2008-2014 went on to become Winners (top 10%) of 2014-2020. I.e., the share was 20% of the firms from both the top 5% and from top 10%. (These numbers can be observed in the T-Test results with opposite directionality. 8% of the firms (2 of 24) denoted by a 1 in the Winners recur in the top 5% of 2008-2014. Similarly, 4 of the same 24 firms (17%) recur in the top 10% of 2008-2014). Meanwhile, the T-Test did not find statistical significance for these tests.

As for period 2008-2020, both the T-Tests were statistically significant. For the overall period, 13 out of the 24 firms in the Winners (54%) were also among the 27 best of the entire period 2008-2020. 8 of these firms (33%) also recurred in the top 5%.

These 8 firms are interesting inspect further. The operational status of all 8 firms was active as of January 2022. The age of these firms varies greatly, with the eldest being established in 1983, the youngest in 2007, and the remaining evenly spaced in between. This spread almost includes both extreme points of the dataset (1980 and 2013). Meanwhile, 5 of the 8 are missing DBG-categorization due to missing response on the questions used to make the clusters. Of the three remaining firms, two are European exporters and the last a domestic actor.

The analysis has produced somewhat mixed results in regard to the performance persistence of the Winners. While there is correlation between the scores of the Winners and the scores of the top 10% of the previous period, the T-Test does not indicate that the Winners consistently claimed top rankings in the previous period. Meanwhile, the strong correlations and T-test results for the overall period suggests some persistence in performance.

A possible explanation for these diverging results is that the Winners did perform persistently well in the previous period, but generally not as high as to be among the top 10 % performers of 2008-2014. An important limitation to consider in relation to these results is that firms that are either dissolved or deleted from Brønnøysundregisteret in the duration of the timeseries, leave the dataset at the point of exit. Thus, these may claim top rankings in the early period without living to become a Winner. This is a clear weakness of the analysis related to the hypothesis at hand, as it creates noise that very well could affect the observable persistence in the Winners' performance.

The contradicting results means that the hypothesis cannot be supported. Meanwhile, there are several indications suggesting that evidence supporting the hypothesis can be found. In other words, it seems that some firms manage to be persistent performers. Thus, rather than rejecting the hypothesis, it is deemed as inconclusive with an urge for subsequent scholars to further investigate this relationship.

H1d – Degree of Born Globalness

Hypothesis 1d states that the Winners score high on Degree of Born Globalness (DBG). As discussed in the derivation of the hypothesis, assessing the DBG of the firms in a sample allows categorizing them in terms of the scope of their internationalization. This is helpful to understand how the extent of their international operations relate to both performance and ambitions, while possibly also providing insight into the trade-off between risk and reward related to internationalization. BGs, who place in the highest end of the DBG-scale, are known to both have the highest performance potential and the highest failure rates (Moen and Criado, 2018). It is therefore expected that the share of BGs in the top 10% is high. This makes it interesting to examine the relation between DBG and frequency in the Winners.

To investigate the various degrees of Born Globalness (DBG), a cluster analysis was conducted. Instead of creating a continual scale, a cluster analysis sorts similar firms into a given number of groups. This was considered a practical design with appropriate detail for the following analysis, which simplifies enough to inspect general patterns. Meanwhile, sorting the clusters by the extent of international activity enables using the DBG-variable as a scale from low to high internationalization. After creating the clusters, the distribution of the Winners across the different clusters was investigated through a crosstab analysis and a One-way ANOVA. This was supplemented by a final T-Test to arrive on a verdict for the hypothesis.

Method

A few adjustments had to be made before conducting the cluster analysis. The export shares stated in the questionnaire (2013-numbers) were recoded to be mutually exclusive geographic areas: Norwegian sales, Nordic export, European export (excluding the Nordics), and export to the rest of the world (denoted Global export). Similarly, a variable for speed of internationalization was calculated as the time from establishment to year of first export. As presented in chapter 3.2, DBG is characterized by the speed and the scope of internationalization. The latter was expressed using the number of export countries, while the export categories (see Figure 8) ensured that the geographical spread was taken into account. Together with year of establishment, the mentioned variables were then fed into an iterative K-means cluster analysis. Different variants were tested for the number of clusters, before landing on 3 clusters.

Next, a One-way ANOVA was conducted to look for significant patterns in cluster affiliation and performance. This was supplemented by a crosstab analysis, which inspected the distribution of the Winners across the clusters. Due to somewhat surprising results for the Winners, the overall period 2008-2020 was included in these analyses to observe whether these results were consistent with those for the Winners. Contraindicating results prompted further simplification of how the groups were grouped in terms of internationalization and a subsequent correlation analysis and T-Test to support or reject the hypothesis.

Results

The cluster analysis produced 3 distinct clusters, shown in Figure 8. Due missing export data from the survey for a noticeable portion of the included firms, 79 of the 203 (38.9%) firms were denoted missing in the clustering process. The high share of firms that were not assigned a cluster affiliation is

an obvious weakness that likely influences the results. For the placed 124 firms, their distribution was as follows: 64 (51.6%) in Cluster 1, 26 (20.9%) in Cluster 2, and 34 (27.4%) in Cluster 3.

Figure 8 – Descriptives of the DBG-clusters

Report

	1: Domestic firms		2: European Exporters		3: True Born Globals		Total	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Year of Establishment	1993	7,64	1991	5,30	1992	7,12	1992	7,05
Speed of Internationalization	6	5,86	5	7,41	2	5,06	5	6,16
Intensity of Internationalization	6	12,50	12	12,81	17	15,73	10	14,26
Domestic sales (% of 2013-sales)	82,7	13,47	21,9	16,78	26,2	21,20	54,5	33,60
Nordic export (% of 2013-sales)	8,3	9,49	23,8	27,02	3,6	5,14	10,3	15,97
European export (% of 2013-sales, excl. Nordics)	4,9	7,95	44,4	21,48	17,5	15,06	16,6	20,53
Global export (% of 2013-sales, excl. Europe and Nordics)	4,3	8,37	9,8	10,20	55,6	17,82	19,5	25,37
Number of cases in cluster	64		24		34		122	

To apply these clusters in the preceding analysis, some comments on their interpretation are in place. The average year of establishment differs by only 1-2 years between the clusters. Meanwhile, there are observable differences in the combinations of speed and intensity of internationalization – the defining aspects of degree of Born Globalness. These are further substantiated by the distribution of sales in different geographic areas. Cluster 1 consists of firms with primarily domestic operations, thereby labeled Domestic Firms. Cluster 2 are exporters in the European market, i.e. European Exporters (EEs). Meanwhile, cluster 3 are exporters to a largely global market, so-called True Born Globals (TBGs) that are in fact global firms (Kuivalainen et al., 2007). Notably, both EEs and TBGs align with the criteria for Born Global firms, displaying rapid internationalization to a large number of markets. On average, the EEs internationalize a bit slower than the TBGs, but still within the widely applied 6-year limit (see Appendix). Consequently, both clusters would in most studies likely be defined as Born Global firms. However, the results (Figure 8) show two clearly different groups in terms of characteristics. Though the export shares signal equally intense internationalization, there is a significant difference in the global spread and number of markets. Therefore, keeping this separation in the analysis makes for an interesting distinction in terms of globalization strategy.

A One-way ANOVA was conducted including both the top 10% of period 2014-2020 (i.e., the Winners) and for 2008-2020 to inspect significant differences between the clusters. See Appendix for test results table. While there were no significant patterns between DBG and the Winners for the period 2014-2020, significant results were identified for period 2008-2020. These results showed that European exporters (Group 2) were statistically significantly more likely to be top-performers than both domestic firms (G1) and true BGs (G3). This was true both for the top 5% and top 10% for 2008-2020, with a stronger significance for the top 10%. This suggests that internationalization is advantageous, but possibly not to the extent of TBGs.

For both tested periods, there were no observable relation between domestic firms (G1) and TBGs (G3) and their frequency in the top 10%. The theory on BGs states that this group has high failure rates, but that those who succeed are very successful. In other words, it is a high risk – high reward group. A likely explanation is therefore that there is a high spread in performance among TBGs, creating great variance between the performance within this group of firms.

Next, the crosstab analysis provided insight into the distribution of top-performers across the identified clusters. The results tables are found in the Appendix. Out of the 24 firms denoted Winners, 7 did were not assigned cluster affiliation due to missing data. Of the 17 remaining Winners, there were 10 domestic firms, 6 EEs, and only one TBG. Considering the outlined theory on BGs suggesting an unmatched growth and performance, this is a surprising result. Therefore, the test was run again on the top 10% of the overall period 2008-2020. In the results for this period, the affiliation was skewed towards more internationalization – an interesting observation. Here, only 5 firms were domestic, while 9 were EEs and 3 were TBGs. 7 were still missing affiliation. Further inspection of these 7 firms showed that three had enough data to determine that they definitely were TBGs. It is therefore speculated that the number of TBGs in reality is somewhat higher – both in the sample and the top-performers. Either way, two observations can be made: Firstly, increased internationalization leading to increased performance is seemingly not a valid pattern in general. This can be observed by the cluster affiliations of the Winners, keeping in mind that the EE-cluster contains the fewest firms. Secondly, adding EEs and TBGs together alludes to that the Winners in fact are more international than the rest of the sample.

To assess the latter and get a verdict of the hypothesis, an adjustment was made before a final test of the hypothesis. Instead of applying the cluster affiliation as test variable, a new one was created with only separated between domestic and international (grouping EEs and TBGs) firms. This new variable was tested in a correlation analysis and an Independent Samples T-Test. The results can be found in the Appendix. The correlation analysis showed a significant (0.05-level) positive correlation between group affiliation and the top 10% performers of the overall period. This was supported by the T-Test, which identified the international firms to have a significantly higher occurrence in the top 10 % of 2008-2020. The cumulative scores of the top 5 % and top 10 % of the same period pointed in the direction of higher growth for the international firms (p-value 0.079, just above threshold of 0.050). As found in the analysis of performance persistence, the top 10% of 2008-2020 is directly correlated with the Winners (0.441 at 0.01-level), and their respective scores have a strong correlation (0.692 at 0.01-level).

Thus, the evidence shows that the degree of internationalization is higher for the Winners than the remaining firms. This seems to be a success factor that strengthens the long-term performance. Interestingly, the ANOVA suggested internationalization focused on Europe to be a better strategy than more 'globalness'. It is possible that the increased risk affiliated with increased internationalization contributes to this result and the lack of significant difference in performance between domestic firms and TBGs. Either way, the hypothesis is supported.

6.2 Winner mindset

H2a – IO and iEO

The first hypothesis around the mindset of the Winners stated that the Winners score high on iEO, and specifically the sub-measure IO, relative to other firms. To analyze this hypothesis, it was necessary to create measures for International Orientation (IO), Entrepreneurial Orientation (EO), and International Entrepreneurial Orientation. Two new scales were created from the questionnaire to measure IO and EO, before computing the iEO based on the beforementioned. These were then used in a correlation analysis against the Winners and the four selected growth measures to inspect the co-movement. Finally, the hypothesis was tested for significant differences in the orientations between the top-performers and the remaining firms with an Independent Samples T-Test.

Method

The theory chapter presented IO as a commitment towards international markets, traceable in the management's mindset. Thus, questions specifically targeting the management's attitude towards international efforts were selected to create a scale measuring IO. The authors of the questionnaire referenced Knight and Cavusgil (2004) for design of these questions. These were questions 505-511, where 506 was inverted to positive direction. See *Appendix A2: Survey* for formulation of the questions. Similarly, the theory chapter dimensionalized EO into risk-taking, innovativeness, and proactiveness, with emphasis on the firm's strategy. With this in mind, questions 604-616 were chosen to create an EO-scale. The references for these questions were Thuriaux-Alemán et al. (2013) and Weerawardena (2003a, 2003b).

The internal consistency of the scales was tested using a Cronbach's alpha reliability analysis. The chosen questions had a Cronbach's alpha of 0.855 for the IO-scale and 0.836 for the EO-scale, which both exceed the minimum threshold for acceptability of 0.70. Thus, the internal consistency suggested the scales were reliable and could be created. Before doing so, the Item-Total Statistics table was investigated for both sets of questions. The tables can be found in the Appendix.

For IO, the Item-Total table showed a negative Item-Total correlation for the inverted 506-question. Furthermore, excluding the question from the scale caused a significant improvement in the Cronbach's alpha to a new value of 0.931. This was confirmed by a Factor analysis, in which this item was the only excluded variable from the single component that was suggested. The Factor analysis is also included in the Appendix. Consequently, the inverted 506-question was removed from the set of questions before creating the IO-scale. For EO, there was no such case. The Cronbach's alpha was stable across all items, and all initial questions were included in the creation of the EO-scale. Based on these IO and EO scales, the International Entrepreneurial Orientation (iEO) was computed as the average of the two to match the 7-point scale of the questionnaire.

The three variables were then tested in a correlation analysis against the standard selection of performance metrics: the binary variable denoting the Winners and the four growth measures. This was followed by an Independent Samples T-Test to uncover if the Winners had significantly higher IO and iEO than the remaining firms. The firms were grouped according to the binary variable denoting the Winners, with the three orientation variables as test variables. Due results that opposed a considerable amount of research suggesting a relation to performance, a second test was run with the top 5 % (i.e., the best half of the Winners) as the grouping variable.

Results

As shown in Figure 9, no correlations were found between the orientation-variables and binary variable denoting The Winners. This implies that there is no clear direct relation between the orientation of the Winners and their performance. Meanwhile, there may be indirect effects on performance, e.g. strategic activities such as innovation (Rauch et al., 2009).

For the selected growth measures, only CAGR sales had significant correlations (0.05-level). These were significant and negative for IO and even stronger for iEO. This implies a connection where higher IO and iEO relates to a weaker CAGR. A few possible explanations should be highlighted. The first is that a high iEO (which implicates a high IO and/or EO) usually entails increased risk and extensive R&D activity, which is meant to fuel long-term growth. However, the findings may signal that such activities in total become loss-making projects for firms with too high IO and iEO. Finally, the formula for calculating CAGR is a relative growth measure, which entails that it is easier to achieve a high CAGR for a firm that is small initially. Thus, the result may actually indicate that larger firms have higher IO and iEO.

Figure 9 – Correlations between a firm's orientations and growth

Correlations

		IO	EO	iEO
The Winners (top 10% 2014-2020)	Pearson Correlation	,037	,048	,011
	Sig. (2-tailed)	,633	,567	,895
	N	168	147	144
Birch Index employment growth 2014-2020	Pearson Correlation	-,008	-,032	-,054
	Sig. (2-tailed)	,927	,732	,569
	N	132	116	114
CAGR sales for 2014-2020	Pearson Correlation	**-,182**[*]	-,130	**-,204**[*]
	Sig. (2-tailed)	,034	,156	,027
	N	136	121	118
Abs sales growth be 2014-2020	Pearson Correlation	,037	-,008	-,026
	Sig. (2-tailed)	,666	,927	,778
	N	136	121	118
Rel sales growth be 2014-2020	Pearson Correlation	-,100	,028	-,063
	Sig. (2-tailed)	,248	,764	,499
	N	136	121	118

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

Next, an independent sample T-Test was conducted with the Winners as grouping variable. The results can be found in the Appendix. No significant relations were identified. Moreover, the p-levels were not nearly close enough to the level of the significance to point in direction of the hypothesis. Furthermore, the average scores of the Winners and the remaining firms were very close in all three orientations. Thus, no support was found for the hypothesis.

Drawing on the literature on the subject which clearly highlights a link between the orientations and performance (see chapter 3.2), this is a surprising result. Therefore, the T-Test was run again on the top 5 % of the same period. Results of this test can also be found in the Appendix. This test found a significant difference (0.67 points on the 7-point scale) in the EO of the best half of the Winners compared to the remaining firms in the sample, but no significant results for IO or iEO.

Consequently, the hypothesis rejected.

H2b – Growth ambition

Hypothesis 2b states that growth ambitions of the Winners are higher than for the remaining firms. To test this hypothesis, it was useful to create a scale to measure growth ambition based on relevant questions from the questionnaire. Following a factor analysis, the overall growth ambition scale was further nuanced by distinguishing between general and international growth ambitions. These three scales were used to test the hypothesis in a correlation analysis, which enabled examining whether ambitions were a possible explanatory variable for the Winners. As hypothesis 2a was rejected, thereby contradicting the evidence of previous scholars, the orientation variables were also tested for correlation with the ambition-scales. This was done to inspect whether an indirect effect on the performance of the Winners could be identified. Finally, the growth ambition scales were run in a T-Test to examine differences between the scores of the Winners and the rest.

Method

To test growth ambition, a series of questions targeting this topic were tested for compatibility through a factor analysis and a reliability analysis with intent to create appropriate scales. These were questions 417-504 and 515 in the questionnaire, which is found in the *Appendix A2: Survey*. Sources of these questions were Strandskov (1994), Andersen and Suat Kheam (1998), and Knight and Cavusgil (2004).

The factor analysis was conducted first on the mentioned questions. No selection variable was chosen for this test. This provided the table shown in Figure 10Figure 10 – Rotated component matrix from factor analysis of growth ambition-questions. The results presented two components that together accounted for 75% of the variance in the set of questions, which was considered acceptable. The two components may be interpreted as a distinction between international (component 1) and general growth ambitions (2). Meanwhile, question 503, which asks to what degree growth is necessary for the firm's survival, does not place itself clearly in either component. To reduce statistical noise, it was therefore decided to exclude the question from both suggested scales.

Figure 10 – Rotated component matrix from factor analysis of growth ambition-questions

Rotated Component Matrix[a]

	Component	
	1	2
417) Growth Amb.: Management		,847
418) Int. Expansion: Management	,868	
501) Growth Amb.: Owners		,812
502) Int. Expansion: Owners	,892	
503) Growth for survival	,511	,508
504) Internationalize for survival	,872	
515) Significant growth in 10 years		,785

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

The next step was to analyze the reliability of the outlined scales. The reliability analysis building on all questions (including 503) gave a Cronbach's alpha of 0.88, well above the minimal requirement of 0.70. Thus, the questions could be merged to create a reliable scale to assess growth ambition as an overall construct. To nuance further, the same set of questions was split as suggested by the factor analysis to distinguish between general (questions 417, 501, and 515) and international growth ambitions (418, 502, and 504). The reliability analyses of these sets gave a Cronbach's alpha 0.91 for international growth ambitions, and 0.83 for the general growth ambitions. To summarize, three scales were created in total: the overall measure of growth ambition, and the two sub-measures of General and International Growth Ambitions. The scales were dimensionalized back to a 7-point Likert scale by dividing by the number of questions.

Next, the three growth ambition scales were entered into a correlation analysis where they were compared against the Winners and the binary variables holding top 10% of the other two periods. Additionally, the iEO scale and the DBG-clusters were included to provide insight into how the various measures created throughout the analyses connect to one another. Such insight is of value to understand the totality and answer the overall hypotheses. Normally, clusters are used to compare groups of variables with certain common traits and are not applicable as scales. However, the variable denoting the DBG-clusters may be considered as a 3-point scale from low to high internationalization, and can therefore be used as a scale of internationalization.

Finally, an Independent Samples T-Test was carried out to quantify the differences in the three orientations of the Winners compared to the rest.

Results

The Factor analysis showed that the questions related to international growth ambitions (component 1) accounted for as much as 60% of the variance. Component 2, consisting of the general growth ambition-questions, contributed 15%. As no selection variable was applied in the factor analysis, the results reflect the entirety of the dataset. Thus, the percentages suggest a broad variation between firms in terms of their internationalization ambitions, while their general growth ambitions are more similar.

The results of the correlation analysis, which is found in the Appendix, proved significant correlations with ambitions only for the DBG variable and iEO. Interestingly, no significant correlations were found between the growth ambitions of the firms and their occurrence among the top performers for any of the periods. Meanwhile, significant relationships with the top-performers had already been identified for both EO, on which iEO is built, and DBG. To examine whether there was an indirect effect on the Winners, the two significant variables were therefore further inspected.

The connection between the DBG cluster affiliation and growth ambitions of the firms was inspected through a One-way ANOVA. Full results can be found in the Appendix. Significant differences in the mean values were identified only for the International Growth Ambitions scale. Here, the Bonferroni post-hoc test showed a significant difference of 1.5 between domestic firms (average score 4.0) and BGs (average score 5.5). The difference between the international growth ambitions of European exporters and domestic firms was close to being significant (sigma 0.088 with threshold 0.050). This solidifies the assessment that a firm's cluster affiliation is related to its ambitions for internationalization. For the assessment of the orientation variables, a correlation analysis with the growth ambitions scales found significant correlations (0.01-level) of medium to high strength for all cells in the matrix (see Appendix). The results indicate a close connection between a firm's orientations and their growth ambitions, particularly when it comes to internationalization. Thus, high growth ambitions were both related to extent of internationalization and the orientations.

Finally, a T-Test was conducted with the Winners as grouping variable and the ambition-scales as test variables. The results are found in Figure 11Figure 11 – Results of a T-Test on the growth ambitions of Winners compared to the remaining firms. The overall growth ambitions of the Winners were found to be significantly higher than for the other firms. Furthermore, the p-value of the International Growth Ambitions was close to being significant (0.064 with threshold 0.050). This supports the hypothesis. Meanwhile, the groups were closer in their general growth ambitions. Their mean values only deviated by 0.27 points on the 7-point scale and this difference was not significant.

Figure 11 – Results of a T-Test on the growth ambitions of Winners compared to the remaining firms

Group Statistics

	The Winners (top 10% 2014-2020)	N	Mean	Std. Deviation	Std. Error Mean
Growth Ambitions Scale	Winners	20	5,3286	,79890	,17864
	Others	153	4,8319	1,48833	,12032
General Growth Ambitions	Winners	21	5,62	1,248	,272
	Others	154	5,35	1,438	,116
International Growth Ambitions	Winners	20	4,85	1,263	,283
	Others	156	4,34	1,980	,159

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Growth Ambitions Scale	Equal variances assumed	10,550	,001	1,462	171	,073	,145	,49664	,33960	-,17371	1,16699
	Equal variances not assumed			2,306	39,144	,013	,027	,49664	,21538	,06104	,93224
General Growth Ambitions	Equal variances assumed	1,796	,182	,827	173	,205	,409	,273	,330	-,378	,924
	Equal variances not assumed			,921	27,773	,182	,365	,273	,296	-,334	,879
International Growth Ambitions	Equal variances assumed	8,144	,005	1,113	174	,134	,267	,506	,455	-,392	1,404
	Equal variances not assumed			1,562	32,455	,064	,128	,506	,324	-,154	1,165

The T-Test supports the hypothesis with respect to the overall growth ambitions scale. As the two remaining scales are sub-measures of this, the hypothesis is supported despite no significant results for the sub-scales. However, the ANOVA suggests a close connection between growth ambitions and increased internationalization, where the latter was identified as a characteristic of the Winners in H1d. Combined with the marginally too high p-value found in the T-Test, the results indicate that the international growth ambitions are significantly related to firms' performance.

In conclusion, the hypothesis is supported, and it is suggested that it primarily is in their international growth ambitions that the Winners distinguish themselves from the remaining firms.

H2c – Sources for inspiration and learning activities

The final hypotheses states that two distinctive success factors for the Winners are an engaged search for information and their learning processes to internalize acquired knowledge. To examine the extent of information search and range of applied learning processes, scales were created based on a set of questions related to the respective topics. The Sources of Information-scale was further nuanced by separating between sources in the immediate network and more external sources that must be actively sought out.

The hypothesis was tested using a correlation analysis to examine relationships, followed by an Independent Samples T-Test with the scales as test variables to examine differences in behavior of the Winners compared to the rest. Finally, a linear regression analysis was run to sort out which aspects were most decisive.

Method

The test the hypothesis concerning sources of inspiration and knowledge acquisition, two sets of questions were used. The first set revolved around which sources of inspiration that had been decisive in the developing activities (questions 709-802). The questionnaire asked to score a number of possible sources of inspiration in terms of the degree to which they have been important for the company's development activities. This implies that higher scores signal an ability to collect important information and make use of it for the development of the firm. The second set of questions was concerned with which learning processes followed to integrate the knowledge acquired through international activities (questions 803-809). These questions asked to what degree a number of learning activities were applied in the company to gather, interpret, and integrate knowledge from international activities. Thus, a high score on this scale would suggest exploitation of a broad range of learning activities or that a selection of learning activities was highly used.

A reliability analysis was conducted on the Sources of Inspiration-questions, resulting in an adequate Cronbach's alpha of 0.80. As all items had a Cronbach's Alpha if Item Deleted between 0.79-0.81, no items signaled inconsistency suggesting their removal. Similarly, testing the compatibility of the questions in the Learning Activities scale resulted in a Cronbach's alpha of 0.86. Also here the Cronbach's Alpha if Item Deleted were consistently stable (0.83-0.85) around the total alpha. Thus, all items were included in the creation of the scale.

To create more nuance in the long list of possible sources of inspiration, this was split into two sub-measures. The first, denoted Network sources, consisted of inspirations sources that were considered as traditional and closely connected. These were resources within the company, including affiliated companies, as well as actors in the company's value chain and competitors (questions 709-14). The second group of inspiration sources were considered as requiring a more active search for inspiration (questions 714-802), including hiring consultants and seeking out academic environments. To reflect more effort, this scale was denoted the Active Search sources.

For the testing, the first analysis was a correlation analysis. Here, the Sources of Inspiration scale, its two sub-scales, and the Learning Activities scale were then tested against the standard set of metrics; the Winners and the four selected growth measures.

Next, an Independent Samples T-Test was performed on the created scales with the Winners as grouping variable. This was supplemented by a test using the top half of the Winners (top 5 % 2014-2020) as grouping variable to see whether the very best firms behaved differently. Finally, a linear

regression analysis was conducted on both sets of questions to determine the most important factors.

Results

The correlation analysis identified few significant correlations, shown in Figure 12. Two correlations were found for The Winners. These were with the Sources of Inspiration scale, and the sub-measure of Network sources. Similar correlations were found between the same inspiration-variables and the measure of relative sales growth. All correlations were of low strength and valid at 0.050 significance level.

Figure 12 – Correlation matrix for inspiration sources and learning activities against the Winners and selected growth metrics

Correlations

		Sources of Inspiration scale	Network sources	Active Search sources	Learning Activities scale
The Winners (top 10% 2014-2020)	Pearson Correlation	,179[*]	,183[*]	,135	,080
	Sig. (2-tailed)	,026	,022	,087	,320
	N	154	156	163	156
Birch Index employment growth 2014-2020	Pearson Correlation	,153	,135	,140	,123
	Sig. (2-tailed)	,098	,141	,117	,179
	N	119	120	127	121
CAGR sales for 2014-2020	Pearson Correlation	,066	,009	,087	-,091
	Sig. (2-tailed)	,465	,920	,321	,307
	N	126	127	133	127
Abs sales growth be 2014-2020	Pearson Correlation	,050	,021	,059	,064
	Sig. (2-tailed)	,579	,816	,504	,474
	N	126	127	133	127
Rel sales growth be 2014-2020	Pearson Correlation	,209[*]	,187[*]	,124	,051
	Sig. (2-tailed)	,019	,035	,155	,568
	N	126	127	133	127

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

The T-Test (Figure 13) uncovered significant differences between the Winners and the other firms for the Sources of Inspiration scale. When equal variances were not assumed, the sub-measure Network sources were significant while the Active Search sources by a slim margin were not. This indicates that the Winners are significantly better at exploiting both categories of information sources. Essentially, this implies an increased ability to acquire inspiration and make use of it for R&D and organizational development. No significant difference was found for the Learning Activities scale. However, given that this has significant correlations of medium to high strength with the Sources of Inspirations scale and both its sub-scales, this implies that the Winners also are good at internalizing the knowledge they obtain. Still, it appears that the internalization is of lesser importance than the acquired information for the Winners importance.

Figure 13 – T-Test of the sources of inspiration and learning activities

Group Statistics

	The Winners (top 10% 2014-2020)	N	Mean	Std. Deviation	Std. Error Mean
Sources of Inspiration scale	Winners	17	4,09	1,061	,257
	Others	137	3,57	,881	,075
Network sources	Winners	18	4,82	,897	,212
	Others	138	4,27	,953	,081
Active Search sources	Winners	19	3,51	1,199	,275
	Others	144	3,05	1,075	,090
Learning Activities scale	Winners	18	3,60	1,173	,277
	Others	138	3,27	1,311	,112

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
						Significance		Mean	Std. Error		
		F	Sig.	t	df	One-Sided p	Two-Sided p	Difference	Difference	Lower	Upper
Sources of Inspiration scale	Equal variances assumed	1,099	,296	2,249	152	,013	,026	,521	,232	,063	,980
	Equal variances not assumed			1,946	18,842	,033	,067	,521	,268	-,040	1,083
Network sources	Equal variances assumed	,006	,936	2,316	154	,011	,022	,550	,237	,081	1,019
	Equal variances not assumed			2,427	22,314	,012	,024	,550	,227	,080	1,019
Active Search sources	Equal variances assumed	,136	,713	1,723	161	,043	,087	,458	,266	-,067	,983
	Equal variances not assumed			1,583	21,984	,064	,128	,458	,289	-,142	1,058
Learning Activities scale	Equal variances assumed	1,333	,250	,997	154	,160	,320	,324	,325	-,318	,966
	Equal variances not assumed			1,087	22,915	,144	,289	,324	,298	-,293	,941

Two separate regression analyses were conducted on the respective questions deemed as inspiration sources and learning activities to determine which aspects were most decisive. The results are attached in the Appendix.

For the sources of inspiration, a stepwise linear regression analysis was used. Associated companies was found to be the most important source of inspiration, with an Adjusted R Square of 0.039. While this is not a large impact, the selected variable is interesting as it suggests being part of a larger conglomerate has a favorable effect on venture success.

For the Learning Activities questions, a stepwise method for the regression model resulted in no entered variables. When switching method to Enter, which forces the model to use the variables, the results proved questions 804 and 805 to be significant. The learning activities these represented were information sharing in meetings and face-to-face discussion between different teams, respectively.

Putting these three questions only into a T-Test with the Winners as grouping variable, some interesting data could be retrieved (see Appendix for results table). Particularly, the difference in the importance of associated companies as a source of inspiration was striking. On average, the Winners awarded associated companies 1.37 points more on the 7-point scale in terms of their importance as a source of new ideas. Sharing information in meetings was 0.73 points more value by the Winners than for the remaining firms. Meanwhile, the importance of face-to-face discussions across teams was denoted marginally less important by the Winners than the rest.

To conclude, it appears the Winners are significantly better at acquiring useful information and use a broader range of sources. While correlations were found only for two out of six measures, the variable denoting the Winners is considered the most important. This is because it is considered a

solid measure based on its construction process, and highly indicative to find correlations with. While they seemingly use the same activities to internalize information, the Winners rate their sources of information as more useful for developing their organization. This implies that the internalization process must be effective. Exactly how this differs from the remaining firms requires more research. Still, the evidence supports the hypothesis. Whether they are better at making use of the information they obtain or better at obtaining useful information is a question that remains unanswered.

6.3 Concluding analysis

In the course of the analyzation of the hypotheses, a number of constructs has been created: the DBG-variable, scales for IO, EO and iEO, and scales for growth ambitions. These are all concepts with support in literature and closely related to the hypotheses derived in chapter 3. While they have been applied to assess respective hypotheses, it has not been investigated which variable is most important for the Winners performance. To inspect this, a regression analysis with all variables was conducted as a final remark.

Method

As a final remark of the statistical analysis, a stepwise linear regression analysis was conducted on the various metrics developed throughout the testing of the hypotheses. These metrics may be broadly grouped as metrics related to mindset (the orientation- and ambition-scales) and metrics related to actions (inspiration and learning-scales). Additionally, there is the group affiliation metrics denoting the Winners and DBG-cluster.

This regression was done iteratively, where the variables entered into the regression model in the previous round was removed before the next iteration. As the initial model only contained one variable, removing this and performing a new iteration enabled investigating possible contributions from the remaining variables. However, after removing the first and second round, no further variables were entered and the iterations was ended.

Results

The regression analysis provided insight into which of the investigated variables were the greatest success factors driving the performance of the Winners. The result tables of the tests can be found in the Appendix. The first regression analysis resulted in one entered variable: Network Sources. This had an adjusted R square of 0.049, implying that the variable is a success factor that explains 4.9% of the Winners' performance. After removing this variable and running a new regression, the DBG cluster affiliation was the only entered variable, with an adjusted R square of 2.9%. After removing this as well, no other variables were entered into the model. For both models, the directly measured impact of the chosen variables is considered low.

7 Discussion

The results of the statistical analysis on the seven hypotheses are summarized in Table 8 – Results of the tested hypothesesTable 8. Four hypotheses were supported by the findings and two were rejected. One was deemed inconclusive.

The primary findings of the study are that the Winners display persistently higher growth than other firms, possibly also before they reach the Winner-status. However, profitability is not a prerequisite for their high growth. Furthermore, the Winners are more international than firms with weaker performance, but this seemingly cannot be explained by higher IO, iEO, or growth ambitions. Meanwhile, the findings suggest that an engaged search for knowledge and inspiration, and the way this is handled in the organization, are success factors.

Table 8 – Results of the tested hypotheses

	HYPOTHESIS	SUPPORTED	INCONCLUSIVE	REJECTED
H1	The growth and performance of the Winners:			
1A	The Winners persistently display higher growth than the remaining firms	X		
1B	Profitability is a prerequisite for high growth			X
1C	The Winners display consistently high performance across the complete timeseries		X	
1D	The Winners score high on DBG	X		
H2	The mindset of the Winners:			
2A	The Winners score high on IO and iEO relative to the rest			X
2B	The Winners have higher growth ambitions than the remaining firms	X		
2C	The Winners' engaged search for information and their learning processes to internalize acquired knowledge are distinctive success factors	X		

Based on these results, the discussion chapter aims to answer the two governing hypotheses of the study. This entails identifying shared characteristics that relate to the Winners' growth and internationalization and discussing how the mindset of the leadership affects firm performance. Finally, the overall research question is attempted answered: Is it possible to predict who will become Winners based on a set of shared success factors?

The Winners are highly international and display persistent growth

Hypothesis 1 describes the growth and internationalization of the Winners, stating that their growth is characteristic and related to their internationalization (degree of Born Globalness). This was investigated by inspecting the financial development of the firms over a 13-year timeseries, as well as a clustering of the firms in terms of internationalization.

The Winners display persistent growth and are precursors to gazelles

The plot of the annual growth rates (Figure 5) visualize how the Winners consistently outperform the other firms in growth over the entire 13-year timeseries. This observable elevation in performance coincides with the findings of Moen et al. (2015). The observation is further supported by the descriptive statistics (Table 5), in which the critical impact of the Winners performance for the total sample average becomes particularly evident. Without the contribution of the Winners, the sample's growth would have been negative both measured in sales and in employment. The growth of the Winners is astonishing with a sales CAGR of 10.9 % and an overall employment growth rate of 86.0 % (i.e., 9.2 % p.a. on average) over the 6-year period 2014-2020. In comparison, the inflation over the same period corresponds to a CAGR of 2.3 % (SSB, 2022a). If the growth of the sample had followed a normal distribution, as often is the case for large and diverse samples, then the difference between the best and the others would not have been as extreme.

These findings fully support the assertion that a smaller group of firms are responsible for nearly all economic growth and new job creation (Grover Goswami et al., 2019, Eurofound, 2012, Henrekson and Johansson, 2010). Furthermore, their growth is persistently high, demonstrating that persistent growth indeed is possible. This appears to contradict the view that most HGFs are unable to sustain high-growth (Daunfeldt and Halvarsson, 2015, Hölzl, 2013, Nicholls-Nixon, 2005).

Meanwhile, the fluctuation in growth suggests that not all of the Winners necessarily are persistent HGFs over the entire period. At the same time, the Winners seemingly avoid the extreme spikes in growth rate, refuting that a characterization as 'one-hit wonders' (Daunfeldt and Halvarsson, 2015) in terms of growths is a fitting description. Nor do the Winners seemingly need 'growth-breaks' to accumulate resources and prepare in order to handle the next period of growth, as proposed by Delmar et al. (2003). Instead, the findings indicate that Winners are equipped to handle a continual fluctuation between medium and high growth. This fits the description of a born-to-run firm, who are characterized by their ability to sustain successions of rapid growth (Hagen and Zucchella, 2014, Hagen et al., 2012). While this is an interesting general observation, there is also notable heterogeneity between Winners as illustrated by the variances in Table 5. Hagen and Zucchella (2014) conclude that many companies can be BGs, but that only some are born to run. Similarly, it can be assumed that many firms can become Winners, but that only some of these are born-to-run. In contrast, the remaining Winners are expected to display a more traditional growth. Perhaps do some fit the above descriptions of 'one-hit wonders' or the waves of high growth and stagnation, keeping in mind that qualifying for the Winners entails a growth among the top 10 % of the sample.

The results of the performance persistence analysis provide further insight into the share of Winners that are born-to-run. 54 % (13 of 24) of the Winners were also among the top-performers over the entire 13-year period of the dataset. Of these 13 firms, 8 were among the top 5 % overall. These likely qualify as gazelles, depending on the applied criteria (e.g., Henrekson and Johansson (2010) use some top x % of HGFs). Furthermore, a few of the early top-performers were acquired, which as stated in 2.1 is the ultimate goal for many entrepreneurs (Wennberg et al., 2010, Gompers et al., 2010). Hagen and Zucchella (2014) draw a clear parallel from their born-to-run firms to the study by

Henrekson and Johansson (2010) on gazelles – a category of superfirms of which an important share is expected to be BGs (Moen and Criado, 2018). Likewise, the born-to-run Winners are expected to be precursors for gazelles.

How the Winners achieve their growth curve is unclear from their financial development

Following the above reflection, an observable performance persistence might be expected. Meanwhile, no such general pattern could be confidently confirmed for the Winners as a group. Some performance persistence was observed in the sense that a handful of Winners performed well ahead of their identification. However, few firms were consistent Winners across the two consecutive periods. The general notion is that the Winners performed well *enough* in the period ahead of their identification (2008-2014). This idea is also reflected by the correlation between the cumulative scores of the different periods. It would be interesting to study at what point their performance shifted to a higher level, or whether their status first and foremost is a result of consistently elevated growth (that is not necessarily HGF-standard) over time. Regardless, this indicates that about 60 % of the Winners (i.e., the top 5 %, including the acquired firms) fit the description of a born-to-run firms, while the remaining 40 % display more traditional high-growth development with larger fluctuations. Further studies are encouraged to determine whether there is some stability in these shares. Another interesting question for future studies is whether the growth of the Winners can be described by a finite number of development patterns, similar to the clusters of Delmar et al. (2003).

Given their unmatched performance in sales growth, it was expected to find characteristic developments in the profitability of the Winners. However, no clear characteristic development for the Winners could be identified in terms of profitability. With an average year of establishment in 1992 (and 1994 for the Winners), most firms were quite mature in 2008. Thus, the developments cannot be interpreted as an unprofitable start-phase. Perhaps does the financial crisis affect the earliest results of the timeseries, but that still does not explain the lack of pattern in the remaining years and measures. It appears that the Winners resemble any other firm when it comes to their profitability metrics in the time before they became Winners. Thus, the claim by Davidsson et al. (2009) that successful long-term growth requires an initial profitability to sustain throughout the expansion, is not supported. While it is reasonable that growth in sales and employment should develop somewhat coherently, the results of this study suggest that immediate profitability is not a prerequisite to become a Winner.

Judging on basis of these findings, no reasonable explanation stands out to elucidate why certain firms experienced a lift in performance while others did not. The second overall hypothesis proposes inspecting the soft factors of the companies in search of an explanation. Meanwhile, identifying certain financial developments indicative of future success is of great value to several stakeholders. This is true for management as a control mechanism, for investors to pinpoint coming Winners, and for policy makers aiming to maximize success rates. There may be observable characteristic developments in other profitability metrics or in the combination of a high growth rate and continual investment in growth and organizational development. Subsequent studies are encouraged to further examine this topic in an attempt find an explanation and related traits that can be used to identify Winners.

Most Winners are highly international, but perhaps not as global as you would think

When distinguishing between mainly international (combining EEs and TBGs) or mainly domestic firms, the results show that Winners indeed are more international than the other firms in the sample. The evidence indicates that internationalization in general increases the likelihood of becoming a Winner and suggests that this strengthens the long-term performance.

The lack of results for period 2014-2020 implies that a range of companies can deliver outstanding performance over a shorter period. Meanwhile, the clear results from the complete 13-year period identify internationalization as a success factor for sustaining high performance over time. This is consistent with research establishing the superiority of BGs in terms of socio-economic importance, and as precursors to gazelles (Knight and Cavusgil, 2004, Knight et al., 2004, Grover Goswami et al., 2019). It also supports literature stating that the early-phase developments of BGs provide an inimitable basis for global competitiveness (Rialp et al., 2005). Conversely, domestic firms following a more traditional internationalization process are expected to struggle with path-dependence and organizational inertia (McDougall et al., 1994, Eriksson et al., 2000). As a consequence, a BG business model perceived as advantageous over a more traditional stage-wise internationalization model by enabling global competitiveness years earlier (Moen and Servais, 2002, Madsen et al., 2001, Knight and Cavusgil, 1996, McDougall et al., 1994).

Interestingly, the results indicate that increased success with increased internationalization is not a valid pattern in general. This becomes evident when comparing European exporters to True BGs, who are both largely international with the former being more geographically concentrated. Instead, the results seemingly suggest that starting out as an EE may be a better strategy. It is not unlikely that this result relates to the increased risk that TBGs experience following a more global internationalization from outset. BGs as a group have the highest growth potential and the highest failure rates, constituting a high risk – high reward environment where the majority end up failing (Moen and Criado, 2018). Consequently, the number of unsuccessful firms in the TBG-cluster may impair the ability to identify general performance patterns of the successful. It is not unlikely that the inconsistent results are a reflection of this complicated image.

A TBG-strategy has a largest long-term potential, but implies higher risk than an EE-strategy

Little research has been conducted with focus on the importance of the globality-aspect of firms with high export to a high number of markets. This makes the distinction between TBGs and EEs highly relevant. Previous studies have inspected similar relatives of TBGs and EEs. E.g. Kuivalainen et al. (2007) studied Born Internationals (BIs; lower turnover and lower geographical spread than BGs), and Choquette et al. (2017) studied Born Exporters (BEs; less intense internationalization). The case of EEs may be considered somewhere in between, with lower geographical spread than TBGs and less rapid internationalization (though still BGs standard, as argued in the analysis of H1d). While Kuivalainen et al. (2007) found the performance of BGs to be superior over BIs, Choquette et al. (2017) found that BGs have higher turnover than BEs but that they contribute equally to socio-economic growth. With immediate internationalization being the primary source of job creation (Choquette et al., 2017), this implies that the EEs in the present study may be equally valuable from a societal perspective – particularly if this strategy entails higher success rates. While a TBG-strategy possibly opens to sustaining rapid expansion for longer, EEs have the advantage of starting with more culturally similar countries, thereby increasing the chance for success.

The results show that while the TBGs are more global, the total share of the firms' revenue from export are strikingly similar to EEs. On average, EEs have a total export share of 78.0 %, compared to

76.7 % for TBGs, but somewhat fewer markets and slower internationalization (Figure 8). While this could produce very different results in NOK, a quick inspection of the clusters showed a larger internal variance in sales than the difference between the TBG and EE-clusters. In other words, the TBGs generate higher revenue on average, but the best EEs match their performance. A relevant question is therefore what advantages come with a more global spread of customers, and how this affects success rates and risk. More research is encouraged on with focus on the risk-reward trade-off related to the choice between widespread globalization or a more geographically focused internationalization strategy. Could a stepwise internationalization model for globalization of a European exporter be equally successful as a TBG-approach from inception? Both industry affiliation and scalability might play a relevant part in this discussion. This calls for further investigation.

Further inspection of the top-performers that were missing cluster affiliation indicates that most of the Winners are BGs, specifically TBGs. This pattern is even more evident for the eight Winners recurring in the top 5% overall. Of the five missing cluster affiliation, four were likely TBGs, and the last likely in the domestic category. These corrections were not included in the analysis. However, if accurate, they indicate a tendency that succeeding with a TBG-approach enables more rapid growth and simultaneous internationalization to several markets than for EEs. It would be interesting to see how this plays out in a longer perspective, particularly in relation to achieving a gazelle status.

The preceding discussion has identified the growth of the Winners as characteristic. This group of top-performers are persistent growers that clearly outperform the remaining firms in both sales and employment growth. Meanwhile, they are hard to identify using conventional financial metrics of profitability. Furthermore, a significant share of the group resemble the 'born-to-run'-firms described by Hagen and Zucchella (2014). In terms of internationalization, the Winners are largely international. Particularly in the long-term, BGs make up the vast majority of the top-performers. These seem to be TBG specifically, but also EEs perform well. In conclusion, the growth of the Winners is characteristic, and related to their internationalization, supporting hypothesis 1.

The Winners' mindset is directional for actions that drive their performance

The first part of the analysis demonstrated that the Winners are astonishing in terms of performance. As the study covers a time span of 13 years, it seems reasonable to believe that the best firms possess certain shared success factors that make them able to systematically outperform the rest. To investigate what these could be, the second hypothesis targeted the soft factors of the Winners. It stated that the mindset of the leadership shapes several crucial features that directly relate to the Winners' performance. This was tested through three sub-hypotheses revolving around international and entrepreneurial orientations, growth ambitions, and how inspiration and knowledge is collected and internalized.

There is no apparent direct relation between orientation levels and performance

The theory places IO as a key success factor for international firms, and BGs in particular (Sørensen and Madsen, 2012, Zucchella et al., 2007, Bell et al., 2004). Also iEO has been identified as a strong contributor to a firm's international performance, and is perceived as one of the most important success factors of BGs (INVs) and exporting SMEs (Knight, 2001). A clear parallel can be drawn to the Winners, who are defined as top-performers, with a significant share being BGs (i.e., EEs or TBGs), and proven more international than the rest of the sample. Accordingly, it was expected to uncover significant relationships in the analysis. Instead, the hypothesis that the Winners score higher on IO and iEO was rejected.

IEO is an important performance success factor for the Winners, but difficult to measure

The literature outlines a relevant explanation. While EO, IO, and iEO have all been identified as strong contributors to firm performance, a considerable number of studies place their effects as indirect (Knight, 2001, Rauch et al., 2009, Moen et al., 2015, Lumpkin and Dess, 1996). Several papers have attempted to model moderating effects in order to explain the inconsistent results in the field on the orientation-performance relationship (Wiklund and Shepherd, 2005, Covin and Slevin, 1991). In evaluation of the results at hand, a likely explanation is therefore that the while strong orientations are a success factor of significance, the effect is not sufficient to be evident in the applied analytical methods. It has also been suggested to be context-specific (Lumpkin and Dess, 1996), which would cause variations in a multi-industry sample as in this study.

Also IEO indirectly enhances the overall international performance of a firm (Knight, 2001). Given that all firms in the sample – and therefore all Winners – are exporting SMEs, this suggests that higher iEO equals higher international performance. However, as mentioned in the analysis, the only significant correlations were with CAGR and EO and iEO, and these were negative. This may be a random observation that is not generalizable. On the other hand, too high levels of both EO and iEO are associated with high risk, with their relationship with performance described as an inverse U-shape (Su et al., 2011, Tang et al., 2008). Consequently, the optimum balances a strong international and entrepreneurial orientation with the increased risk this entails.

This reflection is consistent with the result that there were no significant differences in IO and iEO, but a significantly a significantly higher EO on average for the 10 best Winners (i.e. the top 5 %) compared to the remaining firms in the sample. This points in the same direction as the previous reflection that the Winners in fact are distinctive in their orientations, but that these differences may be hard to measure. EO, IO and IEO are complex constructs consisting of several dimensions whose impact fluctuates through the lifecycle, as previously stated. Thus, it can be hypothesized that the Winners may have a common trait in the way they emphasize the various aspects of their

orientations that the combined measures of this study cannot elucidate. Further inspection of this hypothesized structure is encouraged.

As evident from the previous discussion, a lot of research with mixed results exists on the relationship between the inspected orientations and performance. Rather than following previous scholars and the present paper by attempting to quantify the orientations in a complete measure, subsequent scholars are encouraged to explore the relationship from new angles. This includes the above suggestion of a more detailed approach, but also a more practical approach: Inspecting the practice and actions that the orientations entail is expected to produce valuable insight and contribute to the field.

The Winners have high international growth ambitions and means to realize these

Moen et al. (2015) found that firms where the managers and owners had strong growth motivation also tend to have a high IO and display superior growth both domestically and abroad. This is confirmed by the analysis on growth ambitions. The results identified the growth ambition measures to be closely connected to performance. Interestingly, strong correlations were also found between EO, IO, iEO and the three growth ambition scales. This indicates a close connection between a firm's orientations and their growth ambitions, particularly when it comes to internationalization. Importantly, this supports the allegation that EO, IO, and iEO in fact are key success factors despite minimal evidence from the related hypothesis.

The results of the growth ambition analysis show that the Winners overall are significantly more ambitious than the remaining firms, supporting hypothesis 2b. While the general growth ambitions are more similar to lower performing firms, it seems that the Winners are distinctive in their international growth ambitions. This is an interesting finding that resonates with the observed heightened internationality (DBG) of the Winners. It solidifies the assessment that a firm's cluster affiliation is related to its ambitions for internationalization. In turn, this implies that international ambitions are a key success factor for international success.

Similar results have been found in previous studies for the relationship between orientations and internationalization. Kuivalainen et al. (2007) proposes that to become a TBG, a strong EO an essential but not sufficient element. This notion is supported by Preece et al. (1999), who identified a significant link between managerial attitudes and the intensity of internationalization (i.e. DBG), while stressing that "attitude and desire" is not enough to increase DBG. This suggests that the inspected constructs are part of a larger mindset that entails an ability to identify opportunities and decisions that separate successful international firms from others with the same iEO.

The mindset of the Winners is a key success factor

Although a mindset alone cannot produce results, it is directional for strategy and practice. Such impact has been found for ambitions (Delmar and Wiklund, 2008, McKelvie et al., 2017), and entrepreneurial and international orientations (Rauch et al., 2009, Wiklund, 1999). The identified heightened international ambitions and actual internationalization of the Winners suggest that there is a relation between a firm's ambition levels, strategy, and realized processes that produce positive results. The development and deployment of business strategy is crucial in all firms (Kalinic and Forza, 2012). This also requires an organization that has the financial and human resources, knowledge, and opportunity to act on their ambitions. Lumpkin and Dess (1996) state that IEO gives rise to strategic activities, innovative processes and practices intended to maximize organizational success in new markets. As such, this suggests a link between a firm's ambitions and orientations,

and the developing activities investigated in the last sub-hypothesis (H2c) concerning sources of inspiration and learning activities.

While growth ambitions and international and entrepreneurial orientations could be considered two pieces of a larger strategic mindset, their emphasis in BG-literature suggests that these are key success factors. More research is needed to fully understand the interrelatedness between iEO and growth ambitions, as well as other aspects of this mindset, and how this affects growth and performance. Judging from the previous discussion, it seems reasonable to suspect that the varying results of previous research on the concepts' relations to firm performance is an indication of a significant but complex relation. Rialp et al. (2005) claim that it is the complex web of interactions between the intangible resources that forms a sustainable competitive. It is possible that the Winners do not have a measurable difference in their iEO and that the attitudes and desires may be the same for many other firms. However, it could be hypothesized that the Winners are better at making use of and identifying relations between their intangible resources. This interpretation complements the findings of Hagen and Zucchella (2014). They describe 'openness', in which curiosity is a key feature. This also relates to knowledge acquisition and internalization, as decisive for organizational learning and in turn sustained high growth. Moreover, the speed with which the learning is internalized and developed into innovation as pointed to as the major difference between born-to-run firms and BGs.

The Winners have an experiential ability to seek out and internalize useful information

In support of the final hypothesis, the Winners were found significantly better at acquiring information useful to their developmental activities. Not only were the Winners directly correlated with the overall sources of inspiration scale and the subscale of Network sources, but these were also correlated with the relative sales growth.

When analyzing the sources of information, a separation was made between sources in the immediate network and more external sources demanding a more active search strategy. The Winners were found to gain decisively more inspiration than other firms from the former category, which includes actors in the supply chain, traditional sources such as competitors and customers, and affiliated companies. Meanwhile, there were only some indications supporting the importance of the latter category. This is contrary to Gabrielsson and Kirpalani (2012), who described use of alternative information sources (which were placed in the 'Active Search' category) as an important channel for BGs to generate growth and cash flow in a rapid manner.

Based on the formulation of the questions, where the sources are scored according to their contribution to new/important ideas, it appears that the Winners find their sources of information as more useful for their organization's developing activities. This makes it possible to discuss whether the Winners are better at making use of the information they obtain or better at obtaining useful information. Perhaps is it both. More research on this topic is encouraged. Either way, the increased utility implies that the internalization process must be effective, or else useful information would not yield results. It is therefore an interesting observation that the information is internalized using the same activities as other firms, with the regression analysis pointing out the least formal of the activities as the most decisive. Examining the specifics of the processes related to knowledge acquisition and internalization, and how these differ from lesser performing firms, are highly relevant topics for subsequent studies.

Of the Source of inspiration, affiliated companies were identified as the most important source. This is in line with several studies pointing to the network of business alliances to explain venture success (McDougall et al., 1994) and internalization of BGs (Chetty and Campbell-Hunt, 2004). Also

Cannone and Ughetto (2014) investigated the entrepreneur's network relationships, and found it to be a key driver of both early internationalization and the scope of the international expansion (i.e., DBG). The finding implies that being part of a larger conglomerative corporation gives access to knowledge and inspiration that may be a particularly decisive resource for smaller, resource constrained firms such as a BG (Knight and Cavusgil, 2004, McDougall et al., 1994). Access to direct advice from competent people is not unlikely to be a significant contribution to the firm's competitiveness. However, to make use of it to the extent that the Winners can, requires the outlined mindset.

To summarize, the Winners have high international growth ambitions and means to realize them. This points to knowledge, opportunity, and resources. While they are seemingly do not stand out in their international and entrepreneurial orientations, it is suggested that these have crucial impact that indirectly affect performance. Together with growth ambitions, the orientations are a crucial part of the mindset of a Winner. Another core ability related to the way the Winners how they obtain, process, and internalize inspiration. This directly relates to their performance. Thus, the analysis outlines a distinctive mindset that heightens the performance of the Winners, supporting hypothesis 2.

The Winners' mindset is a crucial success factor for their performance

Based on the analysis and above discussion some valuable insight has been highlighted. However, little connection has been outlined between hypotheses 1 and 2. Moreover, the exact relations and mutual influence between some of the concepts are hard to pinpoint. Therefore, a final investigation is conducted on the relationships between various metrics constructed throughout the analyses.

Figure 14 shows the correlation matrix of the tested constructs. As illustrated, significant correlations are found in nearly all tests (18 out of 24). Notably, the majority of correlations suggest close relationships.

Figure 14 – Correlation matrix of the constructs created throughout the testing of the hypotheses.

Correlations

		Network sources	Active Search sources	Learning Activities scale
The Winners (top 10% 2014-2020)	Pearson Correlation	,183[*]	,135	,080
	Sig. (2-tailed)	,022	,087	,320
	N	156	163	156
DBG-clusters: Domestic, EEs, and TBGs	Pearson Correlation	-,056	,040	,134
	Sig. (2-tailed)	,554	,663	,152
	N	115	120	116
Growth Ambitions Scale	Pearson Correlation	,302[**]	,279[**]	,316[**]
	Sig. (2-tailed)	<,001	<,001	<,001
	N	153	160	154
General Growth Ambitions	Pearson Correlation	,401[**]	,257[**]	,276[**]
	Sig. (2-tailed)	<,001	<,001	<,001
	N	155	162	155
International Growth Ambitions	Pearson Correlation	,182[*]	,253[**]	,302[**]
	Sig. (2-tailed)	,023	,001	<,001
	N	155	162	156
IO	Pearson Correlation	,121	,264[**]	,314[**]
	Sig. (2-tailed)	,143	<,001	<,001
	N	149	156	150
EO	Pearson Correlation	,440[**]	,412[**]	,314[**]
	Sig. (2-tailed)	<,001	<,001	<,001
	N	135	141	137
iEO	Pearson Correlation	,301[**]	,376[**]	,360[**]
	Sig. (2-tailed)	<,001	<,001	<,001
	N	132	138	134

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

With the reflections from the previous discussion in mind, particularly two observations that become evident from the correlation matrix above. The first is the high association between all three orientation-variables and the inspiration and learning scales. This supports the idea that the described ability to seek out and make use of information and inspiration is a trait of the mindset, related to the iEO. Second is the lack of correlation between the DBG-clusters and the inspiration and learning scales. However, the previous analysis identified significant relationships between a firm's DBG and its iEO and growth ambitions. As stated above, iEO and growth ambitions in turn relate to the inspiration and learning scales. Thus, there may be an indirect relation between the DBG and the how knowledge is acquired and internalized, but this is not sufficiently strong to become evident in a correlation analysis. However, with support in the analysis, both traits are first and foremost considered to be consequences of the Winners' mindset.

To create an overview, it was attempted to map out the results to illustrate of how the various constructs are believed to relate to one another. The result is Figure 15.

Figure 15 – Network illustration of the relation between the various constructs from the analysis.
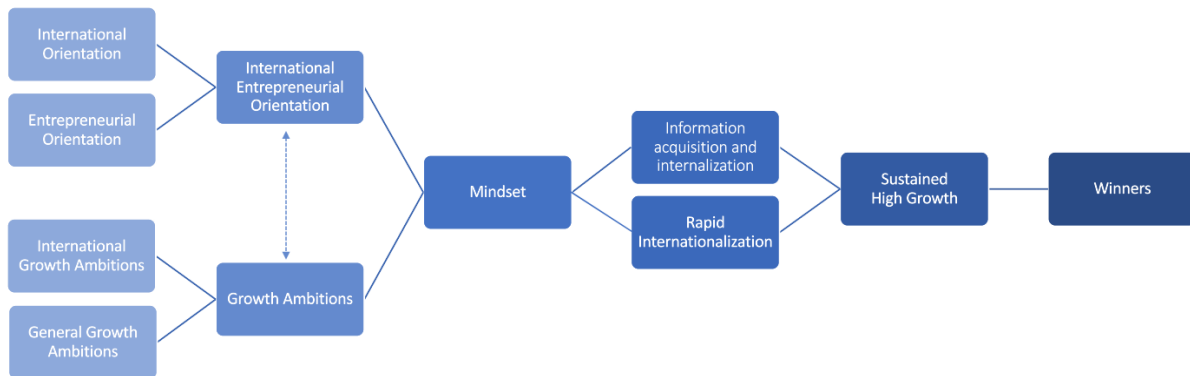
There are likely more success factors that take part in transforming mindset to sustain high growth. Perhaps are there multiple levels in parallel that lead to the sustained high growth-box and transverse synergies between these levels. Subsequent scholars are encouraged to explore and develop the understanding of effects illustrated in this network drawing.

The Winners are highly international and display and outstanding, persistent growth over 13-year period that clearly outperform the remaining firms. Moreover, they possess a distinctive mindset that is directional for the way in which they operate. In conclusion, it is indeed possible to identify several shared success factors that drive the performance of the Winners and make them stand out from the rest. These build on both pure financial analysis and inspection of soft traits. This suggests that it is possible to predict which firms have potential to become Winners. While the results of the present study alone are likely not sufficient to do so with certainty, they may increase the ability to recognize success-related traits by improving the understanding of what it takes for a firm to become a top-performer. Moreover, the findings elucidate several traits that can be looked for by investors, aimed to develop by entrepreneurs and managers, and facilitated by regulatory instances.

Limitations

The present study differs from the previous ones in its design as a time series study, in which a cross-sectional impression of the mindset is collected in the middle through a questionnaire. While this research design enables interesting insight through the investigation of both previous and subsequent performance, it also had a drawback: Using an existing survey removed the opportunity to tailor the questions to the factors that were desired to measure.

Another limitation relates to the varying age of the firms. With 1980 as the first year of inclusion, most firms were relatively mature at the time of the questionnaire. Consequently, the measured aspects of the mindsets are not necessarily representative of the firms' mindsets in the early-stages. The challenge lies in the fact that some of the inspected constructs, e.g., orientations, have been found to change as the venture matures. This likely weakens the ability to identify clear relations between the constructs and performance, and is further complicated by the firms being in different stages. Still, the analyses in the present study that has produced significant results. Perhaps is this indicative of even bigger differences than those identifiable in a sample as heterogeneous in terms of firm age as in the present study.

The high share of firms not assigned cluster affiliation (38.9 % of sample) is an important weakness that likely affects the results. Further inspection of the dataset gives an indication that many of the high-performing firms refrained from responding to export shares – causing their omission from the clustering. Despite this, significant result relating to cluster affiliation were identified. If the true share of BGs is higher, as implied, this only indicates that the results should be stronger.

A few firms were acquired during the timeseries, which may be considered the ultimate success. This terminated the possibility to study their developments and for them to qualify for the Winners. However, as the objective is to identify general characteristics that the top-performer have in common, this is unlikely that this affects the overall results in a significant manner. If anything, the removal of the very best leads to a slight underestimation of the identified relations. not expected to affect the overall findings.

8 Conclusion

The Winners are persistent growers that clearly outperform the remaining firms. They display an outstanding long-term growth in both sales and employment. Their internationalization is rapid, and the speed of the internationalization appears more decisive than its globality for their performance. While a True Born Global strategy is more profitable in the long run, it also entails higher risk than the almost equally successful European Exporters. Of the top-performers, a smaller but decisive share are 'born-to-run'. These are mainly True BGs and are expected to be particularly important as precursors to gazelle companies.

The Winners have a special mindset that contributes to their phenomenal performance. They have high international growth ambitions and means to realize them. An expertise to seek out and utilize information and inspiration contributes to the Winners competitiveness, supplemented by an ability to rapidly internalize the acquired knowledge. Extensive contact with affiliated companies seems to be a crucial source of inspiration, knowledge, resources, and support for a majority of the Winners.

This study has identified several shared success factors that explain the performance of the Winners. This support the idea that it is possible to predict which firms have potential to become Winners based on a combination of a pure financial analysis and an inspection of their mindset. While more research is needed to do so with certainty, the findings of the present study outline some crucial winning traits. These signal a distinctive growth potential, and can be strived for by entrepreneurs and managers, looked for by investors, and facilitated by policy makers.

Implications

The analysis of growth ambitions proved a distinct relation between ambition levels and realized growth. For owners and investors in a firm with low international ambitions, a direct implication is that replacing the management is a straightforward tool to increase the international growth and performance. Another clear implication is that being connected to a larger conglomerate of established companies is a success factor. It seems that proximity to competence is valuable. Consequently, investors should look for investments with support structures, or identify similar structures for existing investments to increase access to knowledge and support. Entrepreneurs should consider finding such structures in the start-phase of their ventures to increase chances of success. Finally, given that the identified differences in performance between a TBG and EE-strategy were not larger, all stakeholders are encouraged to consider the global potential of the venture at hand. A TBG-approach is seemingly best to become a real growth Winner, which is necessary to achieve Gazelle and Unicorn-status. If this is not the aspiration, the results of this study clearly suggest choosing a less global approach to reduce risk.

Areas for further research

Although several areas for further research have been outlined in the discussion, a few broader topics should be mentioned. Due to significant amounts of missing export data, this was not utilized in the present study. However, a longitudinal study on export performance development in relation to either soft factors, financial indicators, or both, is highly complementary to the findings of the present study. Furthermore, given the decisiveness of the early-stage developments and the direction it sets for the trajectory of the firm, it is relevant to examine how the opportunity to shift this growth curve changes as the venture matures. Finally, more research is encouraged on the traits and characteristic developments that can be used to develop, manage, predict, and identify the Winners. How early on can the Winners be identified?

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Appendix

A1: Born Global definitions

The below table is adopted from the Project Assignment by Hjermstad (2021). As evident from the table, there is some variation in the definitions of Born Globals applied by scholars doing research on this group of firms. Some definitions only focus on the distinctive international orientation and strategy (e.g., Oviatt and McDougall, Preece et al.), without applying criteria for speed and intensity of internationalization. Conversely, widely applied definitions in entrepreneurship literature nearly only use speed of internationalization and extent of international activity. As stated in 2.1, commonly used criteria are internationalization within 3 to 6 years and minimum export rate of 25% (Rasmussen et al., 2010).

Authors	Definition	Geographic coverage of study	Maximum time before starting international activities	Minimum share of foreign sales (% of total sales)
Rennie (1993)	The management views the world as their marketplace for the outset	Australia	2 years (on average)	75% (at age of 14 years)
Oviatt and McDougall (1994)	A business organization that, from inception, seeks to derive competitive advantage from the use of resources and the sale of outputs in multiple countries.	n.a.	n.a.	n.a.
Knight and Cavusgil (1996)	Small technology-oriented companies that operate in international markets from the earliest days of their establishment	USA	2 years	25 %
Preece et al. (1999)	Firms engaging in the internationalization process in the formative stages of their business development	n.a.	n.a.	n.a.
Madsen et al. (2001)	Firms established after 1976 with minimum 25% foreign sales and start exporting within 3 years from inception	Denmark	3 years	25 %
McDougall-Covin et al. (2003)	Applying the definition by Oviatt and McDougall (1994)	USA	6 years	n.a.
Chetty and Campbell-Hunt (2004)	Derived from literature: Firms having near-simultaneous and rapid engagement with multiple national markets. Their internationalization happens while the firm is young and still small, enabling operation only in global niche markets or emerging markets opening up to new technologies. Greater use of business networks is required to achieve global reach quickly.	New Zealand	2 years	80 %
Luostarinen and Gabrielsson (2006)	Global vision and/or global growth path	Finland	From inception	50 %
Eurofound (2012)	Entrepreneurs who are trying to start a business (nascent entrepreneurs) or who have done so within the last 3.5 years, and who have indicated that at least 25% of their customers are abroad	EU	3.5 years	25 %

The survey was developed by researchers at the Department of Industrial Economics and Technology Management, NTNU, and distributed in 2014. The distributed questionnaire was in Norwegian. The attached translation was made in May 2014.

Internationalization Of Norwegian Exporting SMEs

About the company

In the following you will find questions related to the company's main export product or service:

General information about the company:
Please enter the details:

101	Company Name:
102	Approx. Which year was the company established?
103	Which position do you hold in the company?

Product

In the following you will find questions related to the company's main export commodity.

	How would you describe your main export? *Please check the box that best describes your answer:*	Do not agree		To some extent			Strongly agree	
104	Can be described as a physical product	1	2	3	4	5	6	7
105	Can be described as a software	1	2	3	4	5	6	7
106	Can be described as a service	1	2	3	4	5	6	7
107	Considered by customers as technically advanced	1	2	3	4	5	6	7
108	Is complicated to use	1	2	3	4	5	6	7
109	Requires a high degree of adjustment to fit individual customers	1	2	3	4	5	6	7
110	Requires extensive customer service and follow-up long after the sale has taken place	1	2	3	4	5	6	7
111	From the first contact with a potential customer to a sale is finalized, it typically take very long time	1	2	3	4	5	6	7
112	Doubt and uncertainty often occurs during the sales process	1	2	3	4	5	6	7

	When you compare your company's products / services to competitive solutions in Norway and abroad, would you say that your main commodity: *Please check the box that best describes your answer*	Do not agree		To some extent			Strongly agree	
113	Is specialized for a limited type of customers (niche)	1	2	3	4	5	6	7
114	Solve specialized customer needs	1	2	3	4	5	6	7
115	Represents a new, innovative way to meet customer needs	1	2	3	4	5	6	7
116	Is unique in terms of design	1	2	3	4	5	6	7
117	Is unique with respect to technology	1	2	3	4	5	6	7
118	Is unique in use	1	2	3	4	5	6	7

Competitive Environment

In the following you will find questions related to the company's market and competitors.

	To what extent do you agree with the following: *Please check the box that best describes your answer*	Do not agree		To some extent			Strongly agree	
201	The company can easily capture changes in customer needs	1	2	3	4	5	6	7
202	The company can easily replace existing suppliers	1	2	3	4	5	6	7
203	The company can easily predict competitors' actions	1	2	3	4	5	6	7
204	The customer can easily replace your commodity with the competitor's solution	1	2	3	4	5	6	7
205	The growth of new competitors is a constant threat for your business	1	2	3	4	5	6	7
206	Competitive products / services is a constant threat for your business	1	2	3	4	5	6	7
207	There is considerable variation in your company's launched products (product mix/assortment)	1	2	3	4	5	6	7
208	The company's products / services are frequently being outdated	1	2	3	4	5	6	7
209	The production technology is changing rapidly	1	2	3	4	5	6	7
210	For your company's type of products / services, price is important for the customer	1	2	3	4	5	6	7

Management and employees

In the following you will find questions related to the company's management team, employees and board of directors as well as management's and owners' growth ambitions for the company.

The term "management team" consists of those persons who regularly make decisions which affect the company's operations (may consist of one person or more).

Please enter the number:

211	How many people would you say are part of the management team in the company?	

The management team's composition and efficiency

	To what extent do the people who are part of the management team, have a diverse composition in terms of: *Please check the box that best describes your answer*	No variation		Some variation			Great variation	
212	Educational background (education type)	1	2	3	4	5	6	7
213	Educational intensity (degree, number of years studying)	1	2	3	4	5	6	7
214	Previous international experience (having worked with international actors, living abroad, is foreign, etc.)	1	2	3	4	5	6	7
215	Personality	1	2	3	4	5	6	7
216	Age	1	2	3	4	5	6	7

The management team's composition and efficiency

	To what extent do you agree that the following statements holds true for the management team? *Please check the box that best describes your answer*	Do not agree		To some extent			Strongly agree	
301	The management team members has experience from previous work with entrepreneurship	1	2	3	4	5	6	7
302	The management team has experience from working in the same industry	1	2	3	4	5	6	7
303	The management team has previous management experience	1	2	3	4	5	6	7
304	The management team handles change very well	1	2	3	4	5	6	7
305	The management team meets new challenges in an efficient manner	1	2	3	4	5	6	7
306	The management team change behavior to meet external requirements	1	2	3	4	5	6	7
307	The management team works very efficiently	1	2	3	4	5	6	7
308	The management team does a very good job	1	2	3	4	5	6	7

	To what extent do you agree that the following statements holds true for the management team? *Please check the box that best describes your answer*	Do not agree		To some extent			Strongly agree	
309	The management team believes that one should try to do several things at once	1	2	3	4	5	6	7
310	The management team would rather focus on one project every day than on parts of several projects simultaneously	1	2	3	4	5	6	7
311	The management team has a tendency to juggle multiple tasks simultaneously	1	2	3	4	5	6	7
312	The management team believes it is best to complete one task before starting the next	1	2	3	4	5	6	7
313	The management team believes it is best that employees are given several tasks and projects to do simultaneously	1	2	3	4	5	6	7

The company's employees

	To what extent do you agree that the following statements are true for the employees of your company? *Please check the box that best describes your answer*	Do not agree		To some extent			Strongly agree	
314	Employees often make an extra effort to make sure that the customers / users are excited about the company's products / services	1	2	3	4	5	6	7
315	Employees take responsibility for improving or developing the company's products / services	1	2	3	4	5	6	7
316	Employees use their spare time to read material that could benefit their work	1	2	3	4	5	6	7
317	Employees make an extra effort without getting paid for it	1	2	3	4	5	6	7
318	Employees make the extra effort even if they know that management will not notice it	1	2	3	4	5	6	7
319	How serious an employee's ideas and suggestions are taken by others often depends more on who the person is than how much he / she can	1	2	3	4	5	6	7
320	The company is adept at capturing lessons / new knowledge from the employees' work experiences	1	2	3	4	5	6	7
	Please check the box that best describes your answer	Do not		To some extent			Strongly	

		agree					agree	
401	Employees find it frustrating to work in this business because of conflict situations	1	2	3	4	5	6	7
402	Employees find it frustrating to work in this business because lack of resources or competencies	1	2	3	4	5	6	7
403	Employees find it frustrating to work in this business because "bureaucracy"	1	2	3	4	5	6	7
404	Generally, employees are very pleased to work in this company	1	2	3	4	5	6	7

	To what extent do you agree that the following statements are true for the employees of your company? *Please check the box that best describes your answer*	Do not agree		To some extent			Strongly agree	
405	The company's employees appreciate and respect each other's contributions	1	2	3	4	5	6	7
406	In this company it is safe for employees to undertake risky projects that have higher probability to fail	1	2	3	4	5	6	7
407	When an employee makes mistakes, it is often held against him / her	1	2	3	4	5	6	7
408	In this business it's easy to bring up difficult topics and discuss issues	1	2	3	4	5	6	7
409	It is difficult to ask other employees for help in this company	1	2	3	4	5	6	7
410	Employees actively share their knowledge and expertise with each other	1	2	3	4	5	6	7

About the company's Board of Directors
Please enter the number:

411	How many external people (outside investors and those without any other connection with the company), does the board of directors consist of?	
412	Approx. how many board meetings with a physical presence were held in 2013?	

	To what extent do you agree with the following: *Please check the box that best describes your answer*	Do not agree		To some extent			Strongly agree	
413	It is often informal contact between management and the company's board members	1	2	3	4	5	6	7
414	The board is concerned with controlling and evaluating historical events (for example, by looking at the accounting data)	1	2	3	4	5	6	7
415	The board is concerned with planning for the future (for example by developing company strategy)	1	2	3	4	5	6	7
416	We have an active, demanding and experienced board of directors	1	2	3	4	5	6	7

Growth and international activities

	To what extent do you agree with the following: *Please check the box that best describes your answer*	do not agree		To some extent			strongly agree	
417	Growth is a strong desire for the company's management							
		1	2	3	4	5	6	7
418	International expansion is a strong desire for the company' management	1	2	3	4	5	6	7
	Please check the box that best describes your answer	**do not agree**		**To some extent**			**strongly agree**	
501	Growth is a strong desire for the company's owners							
		1	2	3	4	5	6	7
502	International expansion is a strong desire for the company's owners	1	2	3	4	5	6	7
503	Growth is necessary for company survival	1	2	3	4	5	6	7
504	International expansion is necessary for company survival	1	2	3	4	5	6	7
505	The company looks at the world and not just Norway as its company market	1	2	3	4	5	6	7
506	Due to uncertainty on export markets you find it best to expand the activities gradually and with caution	1	2	3	4	5	6	7
507	The firm's culture is characterized by active search for new opportunities on foreign markets	1	2	3	4	5	6	7
508	The company has a strong ability to develop and adapt new and existing products to international markets	1	2	3	4	5	6	7
509	The importance of success in the company's international ventures is emphasized to all employees	1	2	3	4	5	6	7
510	It is emphasized to develop human and other resources that can contribute to successful export	1	2	3	4	5	6	7
511	Decisions regarding one export market are coordinated with decisions regarding other export markets	1	2	3	4	5	6	7

	Within a decade it is likely that your company: *Please check the box that best describes your answer*	not likely		somewhat likely			very likely	
512	... Is acquired by new owners							
		1	2	3	4	5	6	7
513	... will acquire other companies	1	2	3	4	5	6	7
514	... Will work increasingly close with other companies	1	2	3	4	5	6	7
515	... Will be substantially larger than today	1	2	3	4	5	6	7

Business Development

We will hereinafter ask some questions about the company's business development

	Launch of new products: *Please check the box that best describes your answer and fill in the numbers*		
516	Have your company launched any new products / services in the last five years?	Yes	No
517	If yes, how many?		

	Start with what you believe to be the company's main product launched in the past five years; do you agree that this item is: *Please check the box that best describes your answer*	Do not agree		To some extent			Strongly agree	
518	New in your company							
		1	2	3	4	5	6	7

	Please check the box that best describes your answer	do not agree		To some extent			strongly agree	
601	New to the company's home market?							
		1	2	3	4	5	6	7
602	New to the international market?	1	2	3	4	5	6	7
603	A minor improvement of existing solutions in your company's sector?	1	2	3	4	5	6	7
604	A radical improvement / new solution compared to existing solutions in your company's sector?	1	2	3	4	5	6	7

	How would you rate your company's ability to be innovative related to: *Please check the box that best describes your answer*	no ability to innovate		some ability to be innovative			excellent ability to innovate	
605	Products							
		1	2	3	4	5	6	7
606	Services	1	2	3	4	5	6	7
607	Production Processes	1	2	3	4	5	6	7
608	business model	1	2	3	4	5	6	7

	How much focus does the company have on the development activities listed below? *Please check the box that best describes your answer*	no focus		To some extent			high focus	
609	Improvement of existing product							
		1	2	3	4	5	6	7
610	Development of new product	1	2	3	4	5	6	7
611	Improvement of existing service	1	2	3	4	5	6	7
612	Development of new service	1	2	3	4	5	6	7
613	Improvement of existing production process	1	2	3	4	5	6	7
614	Development of new production process	1	2	3	4	5	6	7
615	Improvement of existing business (the way a company benefits)	1	2	3	4	5	6	7
616	Development of new business model	1	2	3	4	5	6	7

	What impact has the company's development activities had for your company? *Please check the box that best describes your answer*	no impact		some impact			high impact	
617	Increased the company's profitability							
		1	2	3	4	5	6	7
618	Increased the company's productivity	1	2	3	4	5	6	7
619	Increased the company's market share nationally	1	2	3	4	5	6	7

	Please check the box that best describes your answer	no impact		some impact			high impact	
701	Increased the company's market share internationally							
		1	2	3	4	5	6	7
702	Made it possible for the company to maintain its profit margin	1	2	3	4	5	6	7
703	Made it possible for the company to keep up with its competitors	1	2	3	4	5	6	7
704	Generally, management is very pleased with the company's innovation level	1	2	3	4	5	6	7

No.	**Patents and licensing** *Please check the box that best describes your answer and fill in the numbers*		
705	Has the company applied for a patent	Yes	No
706	Is the company actively seeking to buy patents / licenses as part of its business strategy?	Yes	No
707	How many patents have the company applied for and / or currently own?		
708	How many licenses have the company applied for and / or currently own?		

Sources of inspiration

In the following you will find questions related to sources of new ideas for the company and how the company captures learning from international activities.

	Which of the following have been sources of new / important ideas for your company's development activities? *Please check the box that best describes your answer*	Not a source of new / important ideas		To some extent a source of new / important ideas			great source of new / important ideas	
709	Management							
		1	2	3	4	5	6	7
710	Other employees	1	2	3	4	5	6	7
711	Associated companies in the same company group	1	2	3	4	5	6	7
712	Suppliers	1	2	3	4	5	6	7
713	Customers	1	2	3	4	5	6	7
714	Competitors	1	2	3	4	5	6	7
715	Consultants	1	2	3	4	5	6	7
716	Universities, colleges and/or research institutes	1	2	3	4	5	6	7
717	Support schemes	1	2	3	4	5	6	7
718	Internet	1	2	3	4	5	6	7
719	Trade fairs and exhibitions	1	2	3	4	5	6	7
720	Conferences and scientific publications	1	2	3	4	5	6	7

Please check the box that best describes your answer	Not a source of new / important ideas		To some extent source of new / important ideas			Great source of new / important ideas	
801 Mainly actors in the domestic market							
	1	2	3	4	5	6	7
802 Mainly actors internationally	1	2	3	4	5	6	7

To which extent does the company use each of the following activities to capture, interpret, synthesize and integrate what you have learned from your international activities? *Please check the box that best describes your answer*	to a little extent		To some extent			to a great extent	
803 Use of formal reports and memos to summarize learning							
	1	2	3	4	5	6	7
804 Information sharing in meetings	1	2	3	4	5	6	7
805 Discussions face-to-face between different teams	1	2	3	4	5	6	7
806 Use of experts and consultants to facilitate learning	1	2	3	4	5	6	7
807 Formal analysis of failing international projects	1	2	3	4	5	6	7
808 Formal analysis of successful projects	1	2	3	4	5	6	7
809 Formal discussions of the best ways to use what has been learned in developing new products (or upgrading existing ones)	1	2	3	4	5	6	7

Economy and international activities

Finally, we will ask some questions related to the company's revenue and profit, international activities, and market development.

	Key numbers *Please fill in:*	
810	Approx. in which year did the company have its first sale to a foreign market?	year:
811	In which country was this first international sale?	country:
812	In approx. how many countries were the company's products sold in 2013 (excluding Norway)?	number of countries:
813	What country was the company's main international market in 2013?	country:
814	Approx. what percentage of the company's turnover did this market represent in 2013?	Percent (%):
815	Approx. What was the company's revenue in 2013?	total money:
816	Provide an estimate of how sales were divided in 2013, in **percentage**:	Norway:
		Nordic countries (including Norway)
		Europe (including Scandinavia)
		Rest of the world:

901	Approx. how much of a company's total sales went to research and development in 2013	Percent (%):
902	Approx. how many employees worked for the company in 2013?	number of employees:
903	Approx. How many people in the company traveled in connection with the company's international activities during 2013?	number of people:
904	Approx. How many travel days did the company's employees have to international markets in 2013?	number of days:

The company's international activities

	In terms of your expectations, how satisfied are you with your company's international efforts during the last three years with regard to: *Please check the box that best describes your answer*	not satisfied		partly satisfied			completely satisfied	
905	Achieved market share							
		1	2	3	4	5	6	7
906	Sales Growth	1	2	3	4	5	6	7
907	Sales growth compared to competitors	1	2	3	4	5	6	7
908	Earnings / profitability	1	2	3	4	5	6	7
909	The image the company has gained	1	2	3	4	5	6	7
910	Competence building	1	2	3	4	5	6	7
911	Knowledge about competitors' strategies and behavior	1	2	3	4	5	6	7
912	Knowledge of new technologies and innovations	1	2	3	4	5	6	7
913	Knowledge about new possible ways of distribution	1	2	3	4	5	6	7
914	Access to additional new markets	1	2	3	4	5	6	7
915	Building networks internationally	1	2	3	4	5	6	7
916	All things considered, how satisfied are you with the overall results of the export efforts for the last 3 years?	1	2	3	4	5	6	7

	About the market's development *Please check the box that best describes your answer*	Sharp decline			Stability			Strong growth
917	Market developments in our industry in Norway is characterized by ...	1	2	3	4	5	6	7
918	Market developments in our main export market is characterized by ...	1	2	3	4	5	6	7
919	Overall demand in the industry over the last 3 years have been characterized by ...	1	2	3	4	5	6	7
920	We expect the company's revenue over the next three years to show...	1	2	3	4	5	6	7

A3: Correction log

The following log shows corrections made to the data set. Quite a few corrections were deductible from the dataset (e.g., variables that should be 100% in total). Other corrections or previously missing data were looked up in financial reports and at Proff Forvalt. The corrections are explained in detail below. In a few cases, suspected errors could not be validated and were excluded from the analysis.

Description of corrections

No	Question	Correction					
		Missing values looked up on organization number in Brønnøysunsregisteret					
102	Year of establishment	Year of est. before 1900 was also looked up. Correction made for survey ID 1139: 1898 corrected to 1988					
516	Has the company lauched any new products/services in the last 5 years? (Yes/No)						
517	If yes, how many?	0 corrected to blank, as zero indicates "No" to a516 and thus no answer to a517					
816	Provide an estimate of how sales were divided in 2013, in percentage:	Corrections to obvious logical errors (Mostly filling in blanks). Many respondents did not catch the "including Norway/Nordics"					
816-1	Norway						
816-2	Nordics (incl. Norway)	Should be larger or equal to Norway					
816-3	Europe (incl. Nordics)	Larger or equal to Nordics					
816-4	Rest of the world	Should be = 100% - share of European sales					
816-control	Control variable (816-3 + 816-4)	Should be 100%					
Duplicate responses							
- ORGNR 917313008 West-Norway AS: Most complete response was kept. The respondents had similar roles (coordinator and export coordinator).							
- ORGNR 974388472 Teamtec AS: Both responses were filled out by CEO with 2 weeks space. Equally complete, thus most recent response was kept.							
Survey_ID	a101	a102	a103				
3232	West-Norway AS	1957	Eksportkoordinator				
3011	Teamtec AS	1984	CEO				
Corrected organizational number							
Survey_ID	a101	a102	OLD ORGNR	NEW ORGNR	Comment		
1139	Adams Express AS	1988*	971672722	950013214	Old orgnr belongs to subdepartment.		
		(*corrected from 1898 ref Brreg)			Financials were collected again and control checked against the correct orgnr.		

Log of corrections

The log of corrections follows on the next pages.

ID	ORGNR	NAME	a102-added	a517-old	a517-new	a811-old	a811-new	a816_1-old	a816_2-old	a816_3-old	a816_4-old	a816_1-new	a816_2-new	a816_3-new	a816_4-new	a816_check-new
1008	952257145	A.T. Kearney		25	25			50	75	95	5	50	75	95	5	100
1020	965807691	Aage Pedersen AS		1	1			99	100	100	0	99	100	100	0	100
1024	979498063	Aanderaa Data Instruments AS		7	7			29,41	47,79	81,62	18,38	29,41	47,79	81,62	18,38	100
1027	986342478	AAS MEK VERKSTED AS						99	99	99	1	99	99	99	1	100
1033	962238742	add wellflow		2	2			40	40	45	55	40	40	45	55	100
1064	990217319	X-Partner Oslo AS		2	2			95	100	100	0	95	100	100	0	100
1066	981869311	ALBA INDUSTRIAL AS		4	4			5	20	75	25	5	20	75	25	100
1069	951001880	Alfa Sko AS		30	30				80	100	0		80	100	0	100
1074	988411302	alles miljø														
1080	931854798	ALMEQ Norway A/S		3	3			40	53,33	53,33	46,67	40	53,33	53,33	46,67	100
1081	976115015	Alminor AS						78	93	100	0	78	93	100	0	100
1086	974464071	Alubar A/S		2	2				100			0	100	100	0	100
1089	951632562	AMA SALG AS		2	2			70	70	88	12	70	70	88	12	100
1092	980253996	A-Maskin AS		3	3			15	15	35	65	15	15	35	65	100
1093	947535005	Amatec as						90	92	97	3	90	92	97	3	100
1106	948311798	ANS Byglandsfjord Sag						100	100	100	0	100	100	100	0	100
1111	974681315	Apply Rig & Modules AS		6	6			62,5				62,5				
1117	984562861	Aquastructures						99	99	99	1	99	99	99	1	100
1122	959079153	Arctic Heating AS						82	82	82	18	82	82	82	18	100
1139	971672722	Adams Express AS						30	40	60	40	30	40	60	40	100
1145	911510413	AS ESAB														
1147	911754037	AS Formvac						64,52	70,97	98,71	1,29	64,52	70,97	98,71	1,29	100
1152	945968915	A/S Jotunheimen og Valdresruten Bilselskap		3	3			98	99,5	100	0	98	99,5	100	0	100
1155	943626545	as Marex														
1165	914758084	AS NOROSOL														
1166	915279376	AS NOR-TRAPP						99	100	100	0	99	100	100	0	100
1167	915000452	AS OM BE Plast		2	2			84	94	98	2	84	94	98	2	100
1174	923865209	Scanor AS		250	250			99	99	100	0	99	99	100	0	100
1177	916155808	AS Spilka Industri		1	1			54	86	99	1	54	86	99	1	100
1182	934922867	Venor As														
1184	911058707	Asbj. W. Christophersen & Co A/S														
1189	918240039	Askå Tekniske AS		3	3			95	99	100	0	95	99	100	0	100
1193	944679286	ASTI						99	100	100	0	99	100	100	0	100
1200	982185017	Athena Seafoods AS						0	0	50	50	0	0	50	50	100
1202	943568758	Med-Kjemi AS		2	2			100	100	100	0	100	100	100	0	100
1224	985147477	Bandak Risør AS						100	100	100	0	100	100	100	0	100
1229	910425757	Barra AS														
1257	880309102	BKK /BERGENSHALVØENS KOMMUNALE KRAFTSELSKAP AS)	1998													
1266	945851910	Bibliotekenes IT-senter AS						78	99	100	0	78	99	100	0	100

ID	ORGNR	NAME	a102-added	a517-old	a517-new	a811-old	a811-new	a816_1-old	a816_2-old	a816_3-old	a816_4-old	a816_1-new	a816_2-new	a816_3-new	a816_4-new	a816_check-new
1267	996936708	Aktiv Lek AS		20	20			88	100	100	0	88	100	100	0	100
1270	984329881	Biobe AS		3	3			37,04	55,56	70,37	29,63	37,04	55,56	70,37	29,63	100
1276	910419978	Biral Lubricants Norway AS		5	5			10	20	50	50	10	20	50	50	100
1281	981990374	Fire Protection Engineering AS		5	5			50	50	50	50	50	50	50	50	100
1292	976273850	Blue Cargo AS						2,64	7,92	100	0	2,64	7,92	100	0	100
1300	910743090	Borgestad Fabrikker		5	5			90	95	97	3	90	95	97	3	100
1303	975374564	Boyesen & Munthe AS		1500	1500			85	92	100	0	85	92	100	0	100
1305	929009746	Braillo Norway AS		2	2			1	2	20	80	1	2	20	80	100
1306	979489137	Brandmaster AS						20	25	90	10	20	25	90	10	100
1309	981109341	Breivik Kalkverk		2	2			100				100	100	100	0	100
1310	960537009	Brekke Industrier AS														
1327	916153120	Brødrene Sperre AS		1	1			5	12	27	63	5	12	27	63	90
1333	957036813	Bussbygg AS						82	100	100	0	82	100	100	0	100
1337	983742440	Bykle vindu as						99	100	100	0	99	100	100	0	100
1339	936773311	Båtservice Mandal AS		6	6			100	100	198	-98	100	100	198	-98	100
1351	952822780	Capro as						98	99	99,5	0,5	98	99	99,5	0,5	100
1353	914248965	MacGregor Norway AS		3	3											
1360	935534925	Cavotec micro-control as		3	3											
1364	959383545	Central Prosessor Unit-Service AS		10	10											
1370	956301882	Chr Holtermann ANS		3	3			50	80	90	10	50	80	90	10	100
1373	967209562	Christiania Spigerverk AS	1993													
1382	882170462	CleanPower AS		1	1			100	100	100	0	100	100	100	0	100
1383	963289529	Clipper Seafood AS						20	40	60	40	20	40	60	40	100
1386	971003936	Coast Seafood AS						10	30	80	20	10	30	80	20	100
1391	934615360	Commercial Banking Applications AS		20	20			0	0	70	30	0	0	70	30	100
1397	991923829	Conductor AS		2	2											
1400	936600565	Conoptica AS	1985	3	3			0	1	21	79	0	1	21	79	100
1409	933842185	Corroteam AS		2	2											
1414	983807313	GOODTECH SOLUTIONS AS	2001	1	1			30	35	50	50	30	35	50	50	100
1417	848683272	CSD Sealing & Protection Systems AS		4	4			90	100	0	0	90	100	100	0	100
1422	954572404	Cylindra AS		15	15											
1441	987825200	Deamp AS						50	50	60	40	50	50	60	40	100
1446	963864019	Delitek A/S		7	7			10	15	40	60	10	15	40	60	100
1448	971586826	Delta system AS														
1450	989722328	Delta-P, Pumpe og Kompressor Systemer AS		2	2			80	80	80	20	80	80	80	20	100
1451	971434589	Den Norske Emballasjeforening														
1495	937815751	Ecas AS	1986	4	4			90	100	0	0	90	100	100	0	100
1506	941920020	EFG HOV+DOKKA AS														
1518	929054849	Eidsvoll Electronics AS		3	3			80	90	100	0	80	90	100	0	100

ID	ORGNR	NAME	a102-added	a517-old	a517-new	a811-old	a811-new	a816_1-old	a816_2-old	a816_3-old	a816_4-old	a816_1-new	a816_2-new	a816_3-new	a816_4-new	a816_check-new
1522	964976430	Ekornes ASA		10	10			6	15	75	25	6	15	75	25	100
1530	983058493	Elektroplast as		3	3			30	70	95	5	30	70	95	5	100
1531	983379834	ElektroVakuum AS						88,89	100	100	0	88,89	100	100	0	100
1539	974366541	Elok Låsproduksjon AS		2	2			93,02	100	100	0	93,02	100	100	0	100
1542	824545022	ELTEK ASA						3	10	40	60	3	10	40	60	100
1547	981540107	eMap as		10	10			100	100	100	0	100	100	100	0	100
1548	974453940	EMAS-AMC AS		2	2			80	85	90	10	80	85	90	10	100
1562	979217072	Entrans AS							100	0			100	0		100
1563	962382266	Envicon AS														
1567	936301436	ePocket Solutions AS		3	3			51	93	100	0	51	93	100	0	100
1570	935972027	Ernex AS		1	1			75	95	100	0	75	95	100	0	100
1575	965239219	Eskoleia AS		8	8			80	90	95	5	80	90	95	5	100
1582	958990855	EUROMET AS		5	5			93	100	100	0	93	100	100	0	100
1584	919883472	Europrofil AS		4	4											
1586	981931114	Evry Card Services AS		5	5			77	94	100	0	77	94	100	0	100
1601	964193991	Fibo Trespo AS		15	15			86,11	95,83	100	0	86,11	95,83	100	0	100
1603	911623986	Figgjo AS		120	120			60	80	90	10	60	80	90	10	100
1608	985049599	Firmenich Bjorge Biomarin as		15	15			1	6	58	42	1	6	58	42	100
1615	998793009	Fjell Industries as		4	4			60	60	70	30	60	60	70	30	100
1616	984851170	FJELL Renovering as		20	20			85	100	100	0	85	100	100	0	100
1618	953264560	Fjordfisk AS		14	14			72	100	100	0	72	100	100	0	100
1621	986303510	Flebu International AS		1	1			10	20	40	60	10	20	40	60	100
1622	992394536	Fleetcom AS		2	2											
1628	938202222	Flom Kjetting AS														
1629	979527217	FLOS Norge as														
1634	979346026	Focus Interiør AS		2	2											
1636	965160922	FoodMan AS														
1638	981393961	Forestia AS		5	5			59	93	100	0	59	93	100	0	100
1640	947715259	Fosdalen Industrier AS						100	100	100	0	100	100	100	0	100
1642	931624393	Foss Viking AS		15	15											
1648	911812835	Franzefoss AS						97	98	100	0	97	98	100	0	100
1649	974373149	Frapo AS		1	1											
1658	911832100	Frekhaug Stål AS		15	15											
1659	850977712	Fremo as		6	6			50	50	85	15	50	50	85	15	100
1671	983298702	Fugro OCEANOR														
1673	937107978	Fugro Survey AS		3	3			80	80	80	20	80	80	80	20	100
1676	979459548	Furnes Jernstøperi AS						45	95	100	0	45	95	100	0	100
1677	979983646	Furniture Production International as														
1685	937090730	Gas & Diesel Power AS						60	60	100	0	60	60	100	0	100

ID	ORGNR	NAME	a102-added	a517-old	a517-new	a811-old	a811-new	a816_1-old	a816_2-old	a816_3-old	a816_4-old	a816_1-new	a816_2-new	a816_3-new	a816_4-new	a816_check-new
1716	958244819	Gjerstad Products AS		4	4			69,23	96,15	100	0	69,23	96,15	100	0	100
1747	982546559	New Store Europe Norge AS		1	1											
1753	967993573	GS-Hydro Norge AS						75	80	90	10	75	80	90	10	100
1834	930618683	Hoerbiger Service Nordic AS		1	1			50	55	80	20	50	55	80	20	100
1839	989568302	Holmek Palletering AS						60	100	100	0	60	100	100	0	100
1853	811280852	Hovland Trevarefabrikk AS		3	3			98	99	100	0	98	99	100	0	100
1855	975347389	HS News Systems AS		3	3			30	50	90	10	30	50	90	10	100
1866	912864227	Omya Hustadmarmor AS		2	2			18	40	80	20	18	40	80	20	100
1867	975820262	Huurre Norway AS		3	3				85	95	5		85	95	5	100
1869	957007821	Hycast AS		3	3			5	5	50	50	5	5	50	50	100
1888	834432382	I P Huse as														
1906	963310439	Imatis AS		4	4			54,05	60,81	66,22	33,78	54,05	60,81	66,22	33,78	100
1908	893905952	Nutraq AS		10	10			60	85	88	12	60	85	88	12	100
1918	968144405	Ineos Bamble AS		10	10			1	30	90	10	1	30	90	10	100
1921	964362564	INFOSEC Norge AS		2	2			100	100	100	0	100	100	100	0	100
1924	918535055	Ing. Westad AS		2	2			95	100	0	0	95	100	100	0	100
1930	971174226	Ingeniørfirma Paul Jørgensen AS		3	3			100	100	100	0	100	100	100	0	100
1939	918147748	Intek Engineering AS						99	100	100	0	99	100	100	0	100
1942	955465458	Interfil AS		2	2			85	99	100	0	85	99	100	0	100
1946	979911947	Intertek West Lab AS		6	6			99,9	99,9	100	0	99,9	99,9	100	0	100
1952	975785653	IRTech AS		5	5			0	0	14,29	85,71	0	0	14,29	85,71	100
1954	981017153	Isoterm AS		5	5			90	98	100	0	90	98	100	0	100
1957	965572414	IT Systemer AS														
1962	911071991	Cock J S A/S		5	5			90	93	95	5	90	93	95	5	100
1964	978620051	J Weiberg Gulliksen AS		6	6			90	90	95	5	90	90	95	5	100
1973	942135610	Jason Engineering		1	1			10	10	30	70	10	10	30	70	100
1978	830257772	Jiffy International AS		5	5			1	5	62	38	1	5	62	38	100
1979	913116801	Jiffy Products International AS		0				4	15	84	16	4	15	84	16	100
1981	933654931	Joh H Pettersen AS		2	2			5	85	100	0	5	85	100	0	100
1986	977103487	John Dahle Skipshandel AS		10	10			90	95	99	1	90	95	99	1	100
1989	940315468	Johs H Giæver A/S														
1995	992793716	Jotron AS		10	10			10	30	65	35	10	30	65	35	100
1999	955005848	Jærtek		2	2			50	70	80	20	50	70	80	20	100
2004	980654443	K BRO & ASSOCIATES AS						80	100	100	0	80	100	100	0	100
2008	981923936	K. LUND Offshore as						76	76	76	34	76	76	76	34	110
2011	961032628	Isopartner AS		5	5											
2013	957770029	Kanfa Mator AS		4	4											
2031	976605713	Kitron ASA														
2038	976283147	Kleppe Møbelfabrikk AS						88	100	100	0	88	100	100	0	100

ID	ORGNR	NAME	a102-added	a517-old	a517-new	a811-old	a811-new	a816_1-old	a816_2-old	a816_3-old	a816_4-old	a816_1-new	a816_2-new	a816_3-new	a816_4-new	a816_check-new
2045	983390684	Kollektor AS		4	4			70	90	100	0	70	90	100	0	100
2056	989389246	Kongsgaarden Instrument AS														
2059	931850423	Konsulentselskapet Noodt & Reiding As						0	0	0	0	0	0	0	0	0
2065	983542077	Kristiania kunst-& Metalstøberi A/S						96	100	100	0	96	100	100	0	100
2067	912092615	Kristiansands Cementstøberi AS		2	2			100	100	100	0	100	100	100	0	100
2069	934826906	Kro Produksjon As		3	3			94,29	100	100	0	94,29	100	100	0	100
2079	835056082	Kvanne Industrier AS		3	3			99	100	100	0	99	100	100	0	100
2086	950945524	Laader Berg AS						0	0	5	95	0	0	5	95	100
2091	984531257	Lafinto AS		20	20			98	100	100	0	98	100	100	0	100
2095	913742346	Langlo AS						100	100	100	0	100	100	100	0	100
2101	915391893	lars p riksheim treindustri as														
2102	929565495	Larsnes Mek Verksted AS														
2111	982783550	Lena Metall AS		1	1			90	100	100	0	90	100	100	0	100
2119	913872703	Lid Jarnindustri AS		10	10			95	95	98	2	95	95	98	2	100
2122	984060084	Light Structures AS		2	2			30	30	30	70	30	30	30	70	100
2129	980687007	Litex AS		2	2											
2131	918400184	LKAB Norge AS						0	100	100	0	0	100	100	0	100
2141	992439947	lorentzen hydraulikk as		3	3			95	95	98	2	95	95	98	2	100
2162	932011220	Magnus Aase AS		5	5			60	90	100	0	60	90	100	0	100
2170	963815107	Mar-Kem AS		1	1			100				100				
2172	981363906	Mare Safety AS		3	3			70	70	80	20	70	70	80	20	100
2183	985173710	Maritime Communications Partner AS														
2191	942429576	Martinsen Verktøy og Plast AS		2	2			95				95				
2208	936656013	Medistim ASA		2	2			35	40	60	40	35	40	60	40	100
2209	911198584	Megacon		30	30			30	40	70	30	30	40	70	30	100
2213	959021740	Mericon AS		2	2			50	70	100		50	70	100	0	100
2218	961403308	Meta as														
2220	963419511	Metallco Aluminium AS						8,6	86,2	100	0	8,6	86,2	100	0	100
2227	924435305	IV Microplast		4	4			18	26	46	54	18	26	46	54	100
2230	967791377	Norwegian Seafood Company AS		25	25			35	65	97	3	35	65	97	3	100
2239	980253708	Minera Skifer AS		6	6											
2243	937585543	Miras Grotnes AS														
2250	953166666	Mo Shipping Agency AS		3	3			40	60	90	10	40	60	90	10	100
2270	976734785	MultiCase Norge AS														
2274	984030126	Munck Cranes AS														
2285	951118141	MØRE TRAFO AS		4	4			90	100	100	0	90	100	100	0	100
2297	980158845	NEK Kabel AS		50	50			80	80	84	16	80	80	84	16	100
2300	914565960	Nesje AS						95	100	0	0	95	100	100	0	100
2332	914666236	Nopco Paper Technology AS		5	5			10	80	90	10	10	80	90	10	100

ID	ORGNR	NAME	a102-added	a517-old	a517-new	a811-old	a811-new	a816_1-old	a816_2-old	a816_3-old	a816_4-old	a816_1-new	a816_2-new	a816_3-new	a816_4-new	a816_check-new
2346	987209933	Noratel AS		5	5			80	90	95	5	80	90	95	5	100
2349	992718196	Norbit Group AS		5	5			75,98	82,1	98,34	1,66	75,98	82,1	98,34	1,66	100
2352	929405420	Nor-Dan Båtbyggeri A/S						90	90	100	0	90	90	100	0	100
2358	814697452	Nordenfjeldske Børstefabrikk AS		8	8			85	98	100	0	85	98	100	0	100
2359	929200764	Nordhordland Industriservice as														
2362	976578988	Nordic Group AS						15	30	70	30	15	30	70	30	100
2365	948034255	Nordic Project Management AS														
2372	921541716	Nordiske Industriovner A/S		2	2			95	100	100	0	95	100	100	0	100
2375	914720958	Nordox AS														
2377	910930540	Nordvestvinduet AS		10	10											
2399	967052469	Norlense														
2404	954188906	NorMec AS		3	3			25	30	60	40	25	30	60	40	100
2411	985265984	norrøna storkjøkken oslo as						100	100	100	0	100	100	100	0	100
2417	918482342	Norsilva AS		0				70	90	90	10	70	90	90	10	100
2420	970903577	Norsk Display AS		8	8			35	45	98	2	35	45	98	2	100
2424	836938062	NIRAS AS		3	3			50	50	60	40	50	50	60	40	100
2426	966617969	Evac Norway AS		1	1			10	10	50	50	10	10	50	50	100
2433	930329797	Norsk Luftambulanse AS		2	2			75	100	100	0	75	100	100	0	100
2438	952125001	Norsk Regnesentral						86	86	100	0	86	86	100	0	100
2439	977199611	Norsk Resirk AS		6	6			0	40	100	0	0	40	100	0	100
2444	958990022	Norsk Stein as		2	2			5	20	80	20	5	20	80	20	100
2449	914797020	Norsk Teknisk Porselen AS		3	3			50	60	80	20	50	60	80	20	100
2452	952564730	Norsk Yrkesdykkerskole														
2453	919799064	Norske Backer AS		10	10			92	96	98	2	92	96	98	2	100
2458	979918690	Norske Ventiler AS		4	4			89	91	98	2	89	91	98	2	100
2459	929743040	Norsonic AS		7	7			25	30	80	20	25	30	80	20	100
2464	965449426	Norsync Technology AS		1	1			35	50	50	50	35	50	50	50	100
2467	914785200	Indra Navia AS		2	2			1	5	35	65	1	5	35	65	100
2469	975898253	Nortronic AS		50	50			93	95	100	0	93	95	100	0	100
2472	951438162	Norwegian Deck Machinery AS		4	4			60	70	80	20	60	70	80	20	100
2474	984988893	Norwegian Modellers AS		200	200			99	99,2	99,6	0,4	99	99,2	99,6	0,4	100
2480	976762207	Norwell AS		1	1			5	10	80	20	5	10	80	20	100
2487	979832818	Nui AS		2	2											
2489	952783297	nyborg as		5	5			50	55	60	40	50	55	60	40	100
2491	914781213	Nøsted Kjetting AS		10	10			26,58	34,23	35,59	64,41	26,58	34,23	35,59	64,41	100
2499	911400332	Oceaneering Rotator AS		1	1			65	65	72	28	65	65	72	28	100
2509	980872270	Olar Industrier AS		5	5			86	98	100	0	86	98	100	0	100
2511	911657937	Olav E Fiskerstrand AS						0	0	50	50	0	0	50	50	100
2521	934221923	Onsoft Computer Systems						40	45	94	6	40	45	94	6	100

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2523	974529459	Opera Software ASA		7	7			0	0	34,64	65,36	0	0	34,64	65,36	100
2524	962987427	Operma AS		2	2			50	55	60	40	50	55	60	40	100
2525	923824219	Opero														
2526	966234547	Oppdal Sten AS		3	3			91	95	100	0	91	95	100	0	100
2535	951096296	Orkel AS		3	3			40	40	70	30	40	40	70	30	100
2538	982392098	Oshaug Metall AS														
2539	955400917	OSI Optoelectronics AS		5	5			25	40	100	0	25	40	100	0	100
2541	915157831	Oskar Pedersen AS	1925													
2543	915067026	opi as														
2547	986173617	OSO Hotwater AS		13	13			65	68	95	5	65	68	95	5	100
2549	926551205	Oswo as														
2551	936058310	OBS Technology AS		4	4			70	75	95	5	70	75	95	5	100
2556	960256778	Palfinger Dreggen	1991	5	5			20	20	30	70	20	20	30	70	100
2563	948937107	Parker Maritime AS						80	85	95	5	80	85	95	5	100
2566	964538794	PartnerPlast AS						50	50	60	40	50	50	60	40	100
2568	980027783	Pebecom AS		20	20			95	100	100	0	95	100	100	0	100
2570	980247821	Pegasus helicopter as.														
2573	943527024	Skilt og Dekor AS														
2575	936732054	Per Stave AS		3	3			70	100	100	0	70	100	100	0	100
2578	992067985	Peder Stette AS		15	15			50	50	80	20	50	50	80	20	100
2593	919324074	Plastmo as		2	2			80	98	99	1	80	98	99	1	100
2594	946951501	Plasto AS		10	10			90	90	90	10	90	90	90	10	100
2598	980699560	Plexx AS		7	7			40	90	100	0	40	90	100	0	100
2599	929213467	PM International as														
2618	981940490	ProCab AS		4	4			97	99	99	1	97	99	99	1	100
2621	937199090	Calwin AS		6	6			63	88	94	6	63	88	94	6	100
2622	931658433	Produktdesign as														
2627	938184275	Profilteam as		2	2											
2629	984184816	Prolink International AS		2	2			90	90	95	5	90	90	95	5	100
2630	877380092	PROMIS AS		3	3			99	100	100	0	99	100	100	0	100
2634	980629228	ProSep Norway AS		1	1			70	70	70	30	70	70	70	30	100
2647	966300345	Ulmatec Pyro As		3	3			50	55	60	40	50	55	60	40	100
2654	991697918	Rainpower ASA		4	4			35	50	65	35	35	50	65	35	100
2656	953049724	Rana Gruber AS						1	3	93	7	1	3	93	7	100
2661	918898298	RAPP HYDEMA SYD AS		3	3			75	80	85	5	75	80	85	5	90
2662	982236177	Raufoss Water & Gas AS		4	4			35	45	95	5	35	45	95	5	100
2665	946158070	Byggfakta Docu AS		3	3			90	99	100	0	90	99	100	0	100
2685	996790746	Restech Norway AS						10	15	60	40	10	15	60	40	100
2690	977213800	RIGHT MANAGEMENT NORWAY AS		12	12			1,33	1,67	66,67	33,33	1,33	1,67	66,67	33,33	100

ID	ORGNR	NAME	a102-added	a517-old	a517-new	a811-old	a811-new	a816_1-old	a816_2-old	a816_3-old	a816_4-old	a816_1-new	a816_2-new	a816_3-new	a816_4-new	a816_check-new
2694	968358987	Rival AS		3	3			90	92	0	0	90	92		0	0
2701	971042656	Romsdalshalvøya Interkommunale Renovasjonsselskap IKS														
2705	825248412	Rotorkontroll AS														
2707	939201181	Roxar Software Solutions AS		2	2			25	26	30	70	25	26	30	70	100
2711	954384438	Rub-Tech AS														
2712	981622774	Rumag Skilt og Reklame AS		0				80	80	90	10	80	80	90	10	100
2714	937205961	Rustad Hotel & Fjellstue														
2718	915537227	Rygene-Smith & Thommesen						1	21	99	1	1	21	99	1	100
2730	976145178	Safetel		30	30			70	99	100	0	70	99	100	0	100
2731	929366026	Saga Pearl as														
2742	960750535	Salsnes Filter AS		2	2			40	40	60	40	40	40	60	40	100
2759	856457192	Satema AS						90	95	100	0	90	95	100	0	100
2765	950452110	Scan Mar						0	0	0	100	0	0	0	100	100
2769	937773609	Scana Skarpenord AS						30	40	60	40	30	40	60	40	100
2772	996920933	Scanbio Marine Group		4	4			20	70	100	0	20	70	100	0	100
2775	964633207	Scandia Maskin AS		25	25			73	97	97	3	73	97	97	3	100
2778	979795971	Scandinavian Bunkering AS		1	1			20	20	50	50	20	20	50	50	100
2784	920353908	Scanmatic AS		3	3			86	93	97	3	86	93	97	3	100
2793	980638278	Schütz Nordic AS		5	5			17	100	100	0	17	100	100	0	100
2801	934432657	Sealift AS		4	4			3	6	19	81	3	6	19	81	100
2807	963706464	Selbu Husflid AS		4	4			94	95	96	4	94	95	96	4	100
2816	912228738	SERO AS														
2817	861824152	Servie AS						20	20	40	60	20	20	40	60	100
2821	936801978	Sevrin Tranvåg as						0	0	20	80	0	0	20	80	100
2825	974980606	Shape as		2	2			90	90	100	0	90	90	100	0	100
2828	968111337	ShipNet AS						0	33	67	33	0	33	67	33	100
2840	979369867	Sikom AS		10	10			69	89	99	1	69	89	99	1	100
2842	952055682	Silseth Sten A/S		6	6			100				100	100	100	0	100
2845	995617404	Simplicatus AS		18	18			0	0	20	80	0	0	20	80	100
2846	997109139	Simpro AS		4	4			60	65	100	0	60	65	100	0	100
2858	946768871	Skagerakfisk SA						70	100	100	0	70	100	100	0	100
2870	965378847	SKIPPER Electronics AS		4	4			5	10	20	80	5	10	20	80	100
2873	915971709	Skoghaug Industri AS														
2880	935871107	slettvoll møbler as		10	10			89,47	100	100	0	89,47	100	100	0	100
2890	816064112	Snøgg AS														
2891	942504446	Sobye Miljøfilter AS		2	2											
2908	971586893	Southern Marine AS		5	5											
2918	984021887	STADT AS		2	2			10	10	70	30	10	10	70	30	100
2924	979176848	Star Information Systems AS		5	5			20	40	80	20	20	40	80	20	100

ID	ORGNR	NAME	a102-added	a517-old	a517-new	a811-old	a811-new	a816_1-old	a816_2-old	a816_3-old	a816_4-old	a816_1-new	a816_2-new	a816_3-new	a816_4-new	a816_check-new
2931	876563622	Stensli Gjenvinning AS														
2954	940748585	Westcon Yard Florø AS		4	4			30	30	100	0	30	30	100	0	100
2959	966406135	Sula Bedriftsteneste AS		5	5			75	90	95	5	75	90	95	5	100
2995	963957483	Sørmaskin SWT AS		50	50											
3001	930424110	TAM AS		4	4			100	100	100	0	100	100	100	0	100
3011	974388472	Teamtec AS DUPLICATE DELETED FROM DATASET						10	15	30	70	10	15	30	70	100
3011	974388472	TeamTec AS		0				10	15	25	75	10	15	25	75	100
3024	924959398	Telco Fabrikker AS		1	1			40	50	75	25	40	50	75	25	100
3040	950323280	Testpro as						80	80	80	20	80	80	80	20	100
3043	979485190	Thales NORWAY AS		2	2			56	75	98	2	56	75	98	2	100
3046	965018441	Thermo Byggvarme AS														
3052	935683785	Thrane & Thrane Teknikk AS						85	100	100	0	85	100	100	0	100
3054	987408170	Xervon Norway AS		2	2											
3056	942986009	Timpex		3	3											
3060	935945267	Tinn Belysning A/S		2	2											
3063	952346067	Tjæralin AS		5	5			98	100	100	0	98	100	100	0	100
3066	979746156	Tokvam as														
3070	951906875	Topaz Arctic Shoes as														
3072	952428861	Tore Olsen Produksjon AS		0				97	99	100	0	97	99	100	0	100
3080	927906449	TR Fastenings Norge AS		1	1			85	95	100		85	95	100	0	100
3083	986926909	Tranberg AS		2	2			60	61	70	30	60	61	70	30	100
3087	979913818	Transportpartner AS		0				80	100	100	0	80	100	100	0	100
3090	959056773	Transportøkonomisk Institutt (TØI)		10	10			83	88	95	5	83	88	95	5	100
3104	919634863	Troll-Tinn AS		5	5			99	100	100	0	99	100	100	0	100
3107	934118944	Trosterud Mekaniske Verksted AS		10	10			99	100	100	0	99	100	100	0	100
3109	976699963	Trox Auranor AS		7	7			96	99	100	0	96	99	100	0	100
3113	931092952	Trysil Maskin AS		15	15			80	98	99	1	80	98	99	1	100
3114	947473697	TTC Norge AS														
3127	967337897	Umicore Norway AS		4	4			1	22	90	10	1	22	90	10	100
3129	917016011	UNGER Fabrikker AS		3	3			5	10	95	5	5	10	95	5	100
3131	936980058	Uniheis AS														
3138	850745552	Unimetall AS		15	15			85	100	100	0	85	100	100	0	100
3141	966528591	Unitech Offshore AS		5	5			40	40	85	15	40	40	85	15	100
3150	983995624	Vacon AS		5	5			98	100	0	0	98	100	100	0	100
3151	982812046	VAD AS		5	5			94	98	99	100	94	98	99	100	199
3160	918337679	Varde AS		5	5			90	93	98	2	90	93	98	2	100
3169	848690112	Vefi AS		12	12			42	83	94	6	42	83	94	6	100
3172	971207361	Vello Nordic AS		3	3			28	55	100	0	28	55	100	0	100
3178	920063683	Vest Jet AS		5	5			50	70	85	15	50	70	85	15	100

ID	ORGNR	NAME	a102-added	a517-old	a517-new	a811-old	a811-new	a816_1-old	a816_2-old	a816_3-old	a816_4-old	a816_1-new	a816_2-new	a816_3-new	a816_4-new	a816_check-new
3188	981946170	Petal AS						93	100	100	0	93	100	100	0	100
3192	883783042	Viking Life-Saving Equipment Norge AS		5	5			47	52	60	40	47	52	60	40	100
3194	958596758	Vikomar AS						14	17	42	58	14	17	42	58	100
3195	988407992	Villa Sales AS														
3200	979633629	Virinco AS		10	10											
3202	954165892	Visma Retail		10	10			70	95	100	0	70	95	100	0	100
3203	979489498	Visnes Kalk AS		4	4			80	80	100	0	80	80	100	0	100
3205	982754755	Vital Base AS		2	2			67	80	98	2	67	80	98	2	100
3216	935872367	Wannebo International A/S														
3217	990022585	Washington Mills AS		3	3			1	6	96	4	1	6	96	4	100
3221	917296200	Weifa AS		10	10			65	65	90	10	65	65	90	10	100
3232	917313008	West-Norway AS						0	0	5	95	0	0	5	95	100
3232	917313008	West-Norway AS DUPLICATE DELETED FROM DATASET		40	40			0	0	5	95	0	0	5	95	100
3238	929065697	WINDY BOATS AS		5	5			30	70	100	0	30	70	100	0	100
3240	937220456	WoodTech AS		2	2			70	95	100	0	70	95	100	0	100
3265	979491050	Byggmakker Gipling		500	500			95	100	100	0	95	100	100	0	100
3266	989105345	Moesarc Technology AS		2	2			50	50	100	0	50	50	100	0	100
3267	886953402	PHARMAQ AS		15	15			40	43	60	40	40	43	60	40	100
3268	992097329	Spedman Global Logistics AS		8	8			18	30	90	10	18	30	90	10	100
3269	978603769	MSD Animal Health Norge AS		3	3			100	0	0	0	100	100	100	0	100
3270	992379596	SV Chemicals AS						0	100	100	0	0	100	100	0	100
3271	966444010	HeatWork AS														
3272	911959682	Inneox														
3273	972050296	ELMO Teknikk AS		5	5			80	90	100	0	80	90	100	0	100
3274	920767443	AS Ramoen		2	2			25	30	95	5	25	30	95	5	100
3275	912445313	Hydal Aluminium Profiler AS														
3276	929703766	GC Rieber Eiendom AS		9	9			100	100	100	0	100	100	100	0	100
3277	999326269	Halvorsen Power System AS		1	1	SUA	USA	20	40	80	20	20	40	80	20	100
3278	996363619	Eiken Hytter AS						100	100	100	0	100	100	100	0	100

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A4: Complete correlation matrix

Correlations

Legend for column headers:
- C1 = Birch Index employment growth 2014-2020
- C2 = Birch Index sales 2014-2020
- C3 = CAGR sales for 2014-2020
- C4 = CAGR employment for 2014-2020
- C5 = Abs sales growth be 2014-2020
- C6 = Rel sales growth be 2014-2020
- C7 = Abs empl growth be 2014-2020
- C8 = Rel empl growth be 2014-2020
- C9 = Rel log sales growth timeseries 2014-2020
- C10 = Birch Index employment growth 2011-2020
- C11 = Birch Index sales growth 2008-2020
- C12 = CAGR sales for 2008-2020
- C13 = CAGR employment for 2011-2020
- C14 = Abs sales growth be 2008-2020
- C15 = Rel sales growth be 2008-2020
- C16 = Abs empl growth be 2011-2020
- C17 = Rel empl growth be 2011-2020
- C18 = Rel log sales growth timeseries 2008-2020
- C19 = Rel log employment growth timeseries 2011-2020

Variable		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19
Birch Index employment growth 2014-2020	Pearson Correlation	—																		
	N	157																		
Birch Index sales 2014-2020	Pearson Correlation	.271**	—																	
	Sig. (2-tailed)	<.001																		
	N	153	164																	
CAGR sales for 2014-2020	Pearson Correlation	.218**	.228**	—																
	Sig. (2-tailed)	.007	.003																	
	N	153	164	164																
CAGR employment for 2014-2020	Pearson Correlation	.296**	.141	.693**	—															
	Sig. (2-tailed)	<.001	.081	<.001																
	N	153	153	164	164															
Abs sales growth be 2014-2020	Pearson Correlation	.710**	.261**	.428**	.423**	—														
	Sig. (2-tailed)	<.001	<.001	<.001	<.001															
	N	153	164	164	153	164														
Rel sales growth be 2014-2020	Pearson Correlation	.305**	.952**	.230**	.146*	.062	—													
	Sig. (2-tailed)	<.001	<.001	.003	.072	.145														
	N	156	153	153	156	164	164													
Abs empl growth be 2014-2020	Pearson Correlation	.744**	.562**	.229	.541**	.143	.600**	—												
	Sig. (2-tailed)	<.001	<.001		<.001		<.001													
	N	157	156	156	153	156	156	157												
Rel empl growth be 2014-2020	Pearson Correlation	.578**	.212**	.490**	.633**	.164*	.503**	.400**	—											
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	.043	<.001	<.001												
	N	156	153	156	156	156	156	156	156											
Rel log sales growth timeseries 2014-2020	Pearson Correlation	.156	.183*	.655**	.214*	.561**	.442**	.201*	.425**	—										
	Sig. (2-tailed)	<.001	.019	<.001	.006	<.001	<.001	.011	<.001											
	N	153	153	156	156	157	153	156	156	190										
Birch Index employment growth 2011-2020	Pearson Correlation	.166*	.019	.166*	.117	.119	.119	.123	.133	.123	—									
	Sig. (2-tailed)	.038		<.001		.863**	.119	.201	.141	.504**										
	N	141	151	141	141	151	151	141	151	151	123									
Birch Index sales growth 2008-2020	Pearson Correlation	.038	<.001	.117	.017	.206*	.567**	.610**	.081	.240**	.139	—								
	Sig. (2-tailed)	.014	<.001	.038	.144	.016	<.001	<.001	<.001	.008	<.001									
	N	164	164	156	164	153	156	156	153	115	151	153								
CAGR sales for 2008-2020	Pearson Correlation	.014	.490**	.633**	.165*	.144	.716**	.265**	.245**	.113	.512*	—								
	Sig. (2-tailed)	<.001	<.001	.143	<.001	.143	<.001	<.001	.141											
	N	153	153	153	153	153	153	153	151	112	151	151								
CAGR employment for 2011-2020	Pearson Correlation	.143	.223**	.554**	.242**	.301**	.460**	.716**	.282**	.456**	.131	—								
	Sig. (2-tailed)	.061					<.001		<.001	.163										
	N	117	117	117	117	117	120	120	112	112	120	120								
Abs sales growth be 2008-2020	Pearson Correlation	.277**	.752**	.181*	.130	.795**	.098	.287**	.169	.002	.715**	.282**	.258*	—						
	Sig. (2-tailed)	<.001	<.001	.022	.115	<.001	.219	<.001	.047		<.001	.163								
	N	149	159	159	149	159	159	149	159	152	151	151	120	159						
Rel sales growth be 2008-2020	Pearson Correlation	.004	.362**	.448**	.335**	.293**	.467**	.199	.365**	.242**	.481**	.561**	.291**	.291**	—					
	Sig. (2-tailed)	.212*	<.001	<.001	<.001			.489**												
	N	149	159	149	149	149	159	149	159	152	151	151	159	159	159					
Abs empl growth be 2011-2020	Pearson Correlation	.141	.255**	.346**	.307**	.160	.378**	.911**	.631**	.113	.630**	.712**	.369**	.206*	—					
	Sig. (2-tailed)	.012	<.001	<.001	<.001	.018	<.001	<.001	<.001	.010			.291**	.206*						
	N	151	151	141	141	151	141	141	151	113	112	112	113	151	151	122				
Rel empl growth be 2011-2020	Pearson Correlation	.265**	.364**	.533**	.362**	.102	.581**	.369**	.531**	.353**	.344**	.425**	.595**	.320**	.294**	.437**	—			
	Sig. (2-tailed)	.004	<.001	<.001	<.001	.260**	<.001	<.001	<.001	<.001	<.001	<.001	<.001	.002	<.001	<.001				
	N	118	115	118	118	115	118	118	118	122	118	112	118	113	114	118	118			
Rel log sales growth timeseries 2008-2020	Pearson Correlation	.120	.117	.120	.117	.117	.120	.120	.113	—	.120	.117	.120	.113	.117	.113	.122	.118	—	
	Sig. (2-tailed)																			
	N	122	118	121	120	122	121	120	122	114	113	118	113	117	113	118	122	118	203	
Rel log employment growth timeseries 2011-2020	Pearson Correlation	.212**	.362**	.181*	.130	.098	.163	.169	.002	.131	.258*	—								—
	Sig. (2-tailed)			.115	.219	.047	.033		.163											
	N	152	158	152	152	152	152	152	174	118	149	149	155	149	119	118	183	183		183

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

A5: Statistical Analysis

Analytical results are sorted under their respective hypotheses.

H1a – Growth curve plots

The below table shows the results of the Independent Samples T-Test on the Winners (1) vs the remaining firms (0). The test variables were the annual logarithmic growth rates and the relative log sale growth for the three different periods. Equal variances cannot be assumed. The Winners particularly stand out in the last part of the timeseries.

Group Statistics

	The Winners (top 10% 2014-2020)	N	Mean	Std. Deviation	Std. Error Mean
LN(sales20) - LN(sales19)	1	24	,0546479	,34782248	,07099897
	0	134	-,1701574	,57689952	,04983653
LN(sales19) - LN(sales18)	1	24	,1557011	,23245489	,04744966
	0	139	,0146466	,38584222	,03272671
LN(sales18) - LN(sales17)	1	24	,1128852	,33510603	,06840323
	0	147	-,0571736	,62175138	,05128119
LN(sales17) - LN(sales16)	1	24	,2131452	,31790067	,06489120
	0	151	-,0442964	,41970462	,03415508
LN(sales16) - LN(sales15)	1	24	,2495247	,64796459	,13226522
	0	156	-,0625000	,60503226	,04844135
LN(sales15) - LN(sales14)	1	24	,0794671	,75972766	,15507876
	0	166	,0251341	,74726813	,05799926
LN(sales14) - LN(sales13)	1	24	,0940394	,75671728	,15446427
	0	169	-,0223085	,54409477	,04185344
LN(sales13) - LN(sales12)	1	22	,0196389	,32440300	,06916295
	0	173	-,0024482	,53586830	,04074131
LN(sales12) - LN(sales11)	1	22	,2558859	,48159770	,10267698
	0	173	,0297437	,41011403	,03118039
LN(sales11) - LN(sales10)	1	22	,3132155	1,00704963	,21470370
	0	168	,0463598	,35886161	,02768677
LN(sales10) - LN(sales09)	1	22	-,0832818	,69923954	,14907837
	0	168	-,0027928	,34737170	,02680031
LN(sales09) - LN(sales08)	1	20	,0366175	,25218332	,05638991
	0	168	-,0557985	,39320512	,03033643
Relative log sales growth timeseries 2014 to 2020	1	24	,14423	,108149	,022076
	0	166	-,04641	,449405	,034881
Relative log sales growth timeseries 2008 to 2020	1	24	,13600	,108892	,022228
	0	179	-,03632	,214452	,016029
Relative log sales growth timeseries 2008 to 2014	1	24	,23387	,638824	,130399
	0	179	,00515	,285365	,021329

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance One-Sided p	Significance Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
LN(sales20) - LN(sales19)	Equal variances assumed	2,353	,127	1,847	156	,033	,067	,22480531	,12172303	-,01563267	,46524328
	Equal variances not assumed			2,592	49,183	,006	,013	,22480531	,08674406	,05050302	,39910759
LN(sales19) - LN(sales18)	Equal variances assumed	1,117	,292	1,735	161	,042	,085	,14105453	,08131508	-,01952714	,30163620
	Equal variances not assumed			2,447	48,267	,009	,018	,14105453	,05764119	,02517569	,25693337
LN(sales18) - LN(sales17)	Equal variances assumed	2,252	,135	1,307	169	,096	,193	,17005878	,13010682	-,08678515	,42690270
	Equal variances not assumed			1,989	53,459	,026	,052	,17005878	,08549130	-,00138072	,34149828
LN(sales17) - LN(sales16)	Equal variances assumed	,001	,978	2,874	173	,002	,005	,25744163	,08957764	,08063586	,43424741
	Equal variances not assumed			3,511	37,073	<,001	,001	,25744163	,07333101	,10886872	,40601454
LN(sales16) - LN(sales15)	Equal variances assumed	,296	,587	2,330	178	,010	,021	,31202466	,13391569	,04775800	,57629132
	Equal variances not assumed			2,215	29,505	,017	,035	,31202466	,14085685	,02415418	,59989514
LN(sales15) - LN(sales14)	Equal variances assumed	,049	,825	,332	188	,370	,740	,05433304	,16352533	-,26824728	,37691337
	Equal variances not assumed			,328	29,803	,373	,745	,05433304	,16556973	-,28389922	,39256531
LN(sales14) - LN(sales13)	Equal variances assumed	,660	,417	,929	191	,177	,354	,11634798	,12518580	-,13057626	,36327223
	Equal variances not assumed			,727	26,482	,237	,474	,11634798	,16003412	-,21231590	,44501186
LN(sales13) - LN(sales12)	Equal variances assumed	,190	,664	,189	193	,425	,851	,02208708	,11703930	-,20875323	,25292739
	Equal variances not assumed			,275	37,550	,392	,785	,02208708	,08027060	-,14047618	,18465034
LN(sales12) - LN(sales11)	Equal variances assumed	,444	,506	2,387	193	,009	,018	,22614226	,09472449	,03931415	,41297037
	Equal variances not assumed			2,107	25,026	,023	,045	,22614226	,10730693	,00515103	,44713349
LN(sales11) - LN(sales10)	Equal variances assumed	11,476	<,001	2,467	188	,007	,015	,26685571	,10818633	,05344059	,48027084
	Equal variances not assumed			1,233	21,703	,115	,231	,26685571	,21648149	-,18245534	,71616677
LN(sales10) - LN(sales09)	Equal variances assumed	4,887	,028	-,883	188	,189	,379	-,08048897	,09120209	-,26039993	,09942199
	Equal variances not assumed			-,531	22,376	,300	,600	-,08048897	,15146821	-,39430874	,23333081
LN(sales09) - LN(sales08)	Equal variances assumed	1,169	,281	1,025	186	,153	,307	,09241594	,09016993	-,08547132	,27030319
	Equal variances not assumed			1,443	31,291	,079	,159	,09241594	,06403218	-,03812932	,22296119
Relative log sales growth timeseries 2014 to 2020	Equal variances assumed	2,530	,113	2,065	188	,020	,040	,190634	,092313	,008531	,372737
	Equal variances not assumed			4,618	150,466	<,001	<,001	,190634	,041280	,109072	,272197
Relative log sales growth timeseries 2008 to 2020	Equal variances assumed	1,422	,235	3,864	201	<,001	<,001	,172328	,044594	,084397	,260260
	Equal variances not assumed			6,288	51,347	<,001	<,001	,172328	,027404	,117321	,227335
Relative log sales growth timeseries 2008 to 2014	Equal variances assumed	7,593	,006	3,053	201	,001	,003	,228723	,074928	,080976	,376469
	Equal variances not assumed			1,731	24,245	,048	,096	,228723	,132132	-,043839	,501285

H1b – Profitability

The formulas for calculating the metrics on financial performance is provided below. ROI was retrieved directly from Proff Forvalt as the key metric Lønnsomhet (Totalkapitalrentabilitet). Operating Margin was calculated from retrieved data, using the formula for Resultatgrad from Proff Forvalt's overview on key performance metrics. This is the same as return on total assets, which may be a more intuitive name.

$$Return\ on\ Investment\ (ROI) = \frac{Earnings\ before\ income\ taxes\ +\ Financial\ costs}{\frac{(D + E)_{t-1} + (D + E)_t}{2}}$$

$$where\ (D + E)_i\ is\ the\ sum\ of\ debt\ and\ equity\ in\ year\ i$$

$$Operating\ Margin = \frac{Operating\ profit}{Total\ revenue}$$

H1c – Performance persistence

Correlations between the top x % of the three periods

The correlations between the binary variables denoting the top 10 % and top 5 % of the various periods shows that there is a connection between which firms are top-performers of both sub-periods and in the overall period. However, there is no significant correlation between the top-performers of the first period, 2008-2014, and the subsequent period 2014-2020.

Correlations

		Top 5% 2008-2020	Top 10% 2008-2020	Top 5% 2008-2014	Top 10% 2008-2014
Top 5% of the Winners (2014-2020)	Pearson Correlation	,231**	,227**	-,054	-,010
	Sig. (2-tailed)	<,001	,001	,440	,889
	N	203	203	203	203
The Winners (top 10% 2014-2020)	Pearson Correlation	,452**	,441**	,058	,076
	Sig. (2-tailed)	<,001	<,001	,414	,281
	N	203	203	203	203
Top 5% 2008-2014	Pearson Correlation	,247**	,179*	1,000**	,670**
	Sig. (2-tailed)	<,001	,011	,000	<,001
	N	203	203	203	203
Top 10% 2008-2014	Pearson Correlation	,204**	,248**	,670**	1,000**
	Sig. (2-tailed)	,003	<,001	<,001	,000
	N	203	203	203	203

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

T-test Results: Growth variables for periods 2008-2020 and 2008-2014

The T-test findings are evidence that the associated population means are significantly different. With the Winners-variable as grouping variable, significant findings proves that the Winners are systematically better than the remaining firms in the tested variables. All variables are significant for period 2008-2020, whereas only absolute sales growth is significant for 2008-2014.

Group Statistics

	The Winners (top 10% 2014-2020)	N	Mean	Std. Deviation	Std. Error Mean
Birch Index employment growth 2011-2020	Winners	16	83,5884	83,44088	20,86022
	Others	107	9,4835	20,30894	1,96334
CAGR sales for 2008-2020	Winners	20	,10933	,064259	,014369
	Others	131	-,01610	,157148	,013730
Abs sales growth be 2008-2020	Winners	23	532157,3043	815602,02116	170064,77755
	Others	136	2818,5221	362117,07287	31051,28283
Rel sales growth be 2008-2020	Winners	20	3,3209	3,47276	,77653
	Others	131	,5531	1,73601	,15168
Birch Index employment growth 2011-2014	Winners	16	5,6108	28,84754	7,21188
	Others	135	3,4819	17,76207	1,52872
CAGR sales for 2008-2014	Winners	20	,06138	,134979	,030182
	Others	159	,01228	,140634	,011153
Abs sales growth be 2008-2014	Winners	23	173907,3478	273785,56750	57088,23719
	Others	166	5505,5241	302344,43888	23466,47952
Rel sales growth be 2008-2014	Winners	20	,7176	1,17146	,26195
	Others	159	,4022	1,35053	,10710

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Birch Index employment growth 2011-2020	Equal variances assumed	139,592	<,001	7,901	121	<,001	<,001	74,10488	9,37923	55,53621	92,67354
	Equal variances not assumed			3,537	15,267	,001	,003	74,10488	20,95241	29,51374	118,69601
CAGR sales for 2008-2020	Equal variances assumed	2,080	,151	3,516	149	<,001	<,001	,125423	,035667	,054944	,195901
	Equal variances not assumed			6,311	61,985	<,001	<,001	,125423	,019874	,085695	,165150
Abs sales growth be 2008-2020	Equal variances assumed	23,980	<,001	5,173	157	<,001	<,001	529338,78229	102320,99714	327235,45759	731442,10699
	Equal variances not assumed			3,062	23,487	,003	,005	529338,78229	172876,28735	172126,83398	886550,73060
Rel sales growth be 2008-2020	Equal variances assumed	14,999	<,001	5,648	149	<,001	<,001	2,76771	,49008	1,79931	3,73611
	Equal variances not assumed			3,498	20,473	,001	,002	2,76771	,79121	1,11972	4,41570
Birch Index employment growth 2011-2014	Equal variances assumed	3,294	,072	,420	149	,338	,675	2,12892	5,06867	-7,88685	12,14468
	Equal variances not assumed			,289	16,375	,388	,776	2,12892	7,37213	-13,47029	17,72812
CAGR sales for 2008-2014	Equal variances assumed	,837	,362	1,478	177	,071	,141	,049091	,033225	-,016476	,114658
	Equal variances not assumed			1,526	24,488	,070	,140	,049091	,032177	-,017249	,115431
Abs sales growth be 2008-2014	Equal variances assumed	3,249	,073	2,530	187	,006	,012	168401,82373	66552,94636	37110,76108	299692,88638
	Equal variances not assumed			2,728	29,949	,005	,011	168401,82373	61723,11144	42337,35022	294466,29724
Rel sales growth be 2008-2014	Equal variances assumed	,130	,718	,998	177	,160	,320	,31545	,31613	-,30842	,93932
	Equal variances not assumed			1,115	25,797	,138	,275	,31545	,28300	-,26648	,89738

T-test Results: top 5% and top 10% variables for periods 2008-2020 and 2008-2014

As for the test on growth measures, the variables for the overall period (2008-2020) are statistically significant. With the Winners of 2014-2020 as grouping variable, in which the top-performers are denoted by value 1, the test results describe the share of the Winners among the top 5% and 10% of the overall period. 54% of the firms in the top 10% of the overall period are also in the Winner 2014-2020. For the top 5% of the overall period, 33% are in the Winners 2014-2020. For the period 2008-

2014, there is no statistically significant pattern, and the mean values suggest a low number of firms recurring in the Winners.

Group Statistics

	The Winners (top 10% 2014-2020)	N	Mean	Std. Deviation	Std. Error Mean
Top 5% 2008-2020	1	24	,33	,482	,098
	0	179	,02	,129	,010
Top 10% 2008-2020	1	24	,54	,509	,104
	0	179	,08	,269	,020
Top 5% 2008-2014	1	24	,08	,282	,058
	0	179	,03	,165	,012
Top 10% 2008-2014	1	24	,17	,381	,078
	0	179	,09	,294	,022

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance		Mean	Std. Error	95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Difference	Difference	Lower	Upper
Top 5% 2008-2020	Equal variances assumed	215,132	<,001	7,174	201	<,001	<,001	,317	,044	,230	,404
	Equal variances not assumed			3,205	23,443	,002	,004	,317	,099	,112	,521
Top 10% 2008-2020	Equal variances assumed	57,243	<,001	6,960	201	<,001	<,001	,463	,067	,332	,595
	Equal variances not assumed			4,379	24,754	<,001	<,001	,463	,106	,245	,682
Top 5% 2008-2014	Equal variances assumed	7,358	,007	1,397	201	,082	,164	,055	,040	-,023	,134
	Equal variances not assumed			,940	25,154	,178	,356	,055	,059	-,066	,177
Top 10% 2008-2014	Equal variances assumed	4,118	,044	1,081	201	,141	,281	,072	,066	-,059	,203
	Equal variances not assumed			,888	26,803	,191	,383	,072	,081	-,094	,237

Crosstab analysis

The crosstab analysis is a descriptive statistical method that summarizes the relationship between different variables of categorical data. In this case, that means a table showing what values the Winners of 2014-2020 have in the variable for the compared period. The box denoting 1-1 contains the number of interest, as this shows how many of the Winners also were top-performers in the compared period.

- **Top 5% and top 10% firms of 2008-2014 that became Winners of period 2014-2020:**

Winners (top 5%) 2008-2014 * The Winners (top 10% 2014-2020) Crosstabulation

Count

		The Winners (top 10% 2014-2020)		Total
		0	1	
Winners (top 5%) 2008-2014	0	19	22	41
	1	8	2	10
Total		27	24	51

Winners (top 10%) 2008-2014 * The Winners (top 10% 2014-2020) Crosstabulation

Count

		The Winners (top 10% 2014-2020)		Total
		0	1	
Winners (top 10%) 2008-2014	0	10	20	30
	1	17	4	21
Total		27	24	51

- **Top 5% and top 10% firms of the overall period 2008-2020 that also are Winners:**

Winners (top 5%) 2008-2020 * The Winners (top 10% 2014-2020) Crosstabulation

Count

		The Winners (top 10% 2014-2020)		Total
		0	1	
Winners (top 5%) 2008-2020	0	24	16	40
	1	3	8	11
Total		27	24	51

Winners (top 10%) 2008-2020 * The Winners (top 10% 2014-2020) Crosstabulation

Count

		The Winners (top 10% 2014-2020)		Total
		0	1	
Winners (top 10%) 2008-2020	0	13	11	24
	1	14	13	27
Total		27	24	51

H1d – Degree of Born Globalness

One-way ANOVA: DBG-clusters

The ANOVA identified significant relations between the cluster affiliation and whether firms were in the top 10% or not for the overall period 2008-2020. No such relation was found for 2014-2020.

Multiple Comparisons

Bonferroni

Dependent Variable	(I) DBG clusters: Domestic, EEs, and TBGs	(J) DBG clusters: Domestic, EEs, and TBGs	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Winners (top 5%) 2014-2020	1	2	,055	,057	1,000	-,08	,19
		3	,064	,052	,665	-,06	,19
	2	1	-,055	,057	1,000	-,19	,08
		3	,009	,064	1,000	-,15	,17
	3	1	-,064	,052	,665	-,19	,06
		2	-,009	,064	1,000	-,17	,15
The Winners (top 10% 2014-2020)	1	2	-,075	,079	1,000	-,27	,12
		3	,127	,072	,245	-,05	,30
	2	1	,075	,079	1,000	-,12	,27
		3	,201	,089	,075	-,01	,42
	3	1	-,127	,072	,245	-,30	,05
		2	-,201	,089	,075	-,42	,01
Winners (top 5%) 2008-2020	1	2	-,123*	,049	,040	-,24	,00
		3	,031	,045	1,000	-,08	,14
	2	1	,123*	,049	,040	,00	,24
		3	,154*	,055	,017	,02	,29
	3	1	-,031	,045	1,000	-,14	,08
		2	-,154*	,055	,017	-,29	-,02
Winners (top 10%) 2008-2020	1	2	-,268*	,077	,002	-,45	-,08
		3	-,010	,070	1,000	-,18	,16
	2	1	,268*	,077	,002	,08	,45
		3	,258*	,086	,010	,05	,47
	3	1	,010	,070	1,000	-,16	,18
		2	-,258*	,086	,010	-,47	-,05

*. The mean difference is significant at the 0.05 level.

Crosstab analysis: DBG-clusters

The two tables show the distribution across the different DBG cluster for the Winners and the top 10% of the overall period, respectively. Notably, 7 Winners and 10 firms in the top 10 % of the overall period are missing cluster affiliation due to inadequate data. Meanwhile, closer inspection of the available data enables clearly placing the majority of missing firms in the TBG or EE-clusters.

Crosstab

Count

		DBG clusters: Domestic, EEs, and TBGs 1	DBG clusters: Domestic, EEs, and TBGs 2	DBG clusters: Domestic, EEs, and TBGs 3	Total
The Winners (top 10% 2014-2020)	0	54	20	33	107
	1	10	6	1	17
Total		64	26	34	124

Crosstab

Count

| | | DBG clusters: Domestic, EEs, and TBGs | | | |
		1	2	3	Total
Winners (top 10%) 2008-2020	0	59	17	31	107
	1	5	9	3	17
Total		64	26	34	124

Correlation: Domestic vs International firm-grouping

When the firms are grouped in terms of mainly domestic activity (Domestic firms, denoted 0 in the variable) or international activity (European exporters and Born Globals, denoted 1), a significant correlation is found with the firms occurrence in the top 10% performers of the entire timeseries. The positive correlation indicates that internationalization and performance moves in the same direction.

Correlations

		Domestic or international classification only
The Winners (top 10% 2014-2020)	Pearson Correlation	,003
	Sig. (2-tailed)	,970
	N	127
Cumulative score top 10% 2014-2020	Pearson Correlation	-,004
	Sig. (2-tailed)	,966
	N	127
Winners (top 10%) 2008-2020	Pearson Correlation	**,202**[*]
	Sig. (2-tailed)	,023
	N	127
Cumulative score top 10% 2008/2011-2020	Pearson Correlation	,129
	Sig. (2-tailed)	,148
	N	127

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

T-Test Results: Domestic vs International firm-grouping

The T-test finds significant difference between the mean value of domestic firms compared to international firms with respect to their occurrence in the top 10% over the entire 13-year period 2008-2020. Furthermore, the occurrence in the top 5 % of the same period, and the related score variables for both the top 5 % and top 10 % were close significance, thereby pointing in the same direction. Interestingly, the difference in the mean values of the domestic compared to the international firms are small for the Winners. In total, this paints a picture of internationalization being an important success factor for long-term performance and growth, while it is possible that other firms perform better over shorter periods.

Group Statistics

	Domestic or international classification only	N	Mean	Std. Deviation	Std. Error Mean
Winners (top 5%) 2014-2020	Domestic	64	,09	,294	,037
	International	63	,05	,215	,027
The Winners (top 10% 2014-2020)	Domestic	64	,16	,366	,046
	International	63	,16	,368	,046
Cumulative score top 5% 2014-2020	Domestic	64	,55	1,259	,157
	International	63	,56	1,175	,148
Cumulative score top 10% 2014-2020	Domestic	64	1,08	1,978	,247
	International	63	1,06	1,925	,243
Winners (top 5%) 2008-2020	Domestic	64	,03	,175	,022
	International	63	,10	,296	,037
Winners (top 10%) 2008-2020	Domestic	64	,08	,270	,034
	International	63	,22	,419	,053
Cumulative score top 5% 2008/2011-2020	Domestic	64	,42	1,020	,128
	International	63	,75	1,502	,189
Cumulative score top 10% 2008/2011-2020	Domestic	64	,86	1,689	,211
	International	63	1,38	2,303	,290

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Winners (top 5%) 2014-2020	Equal variances assumed	4,201	,042	1,009	125	,157	,315	,046	,046	-,044	,137
	Equal variances not assumed			1,011	115,384	,157	,314	,046	,046	-,044	,136
The Winners (top 10% 2014-2020)	Equal variances assumed	,006	,939	-,038	125	,485	,970	-,002	,065	-,131	,126
	Equal variances not assumed			-,038	124,937	,485	,970	-,002	,065	-,131	,126
Cumulative score top 5% 2014-2020	Equal variances assumed	,027	,870	-,040	125	,484	,968	-,009	,216	-,436	,419
	Equal variances not assumed			-,040	124,645	,484	,968	-,009	,216	-,436	,419
Cumulative score top 10% 2014-2020	Equal variances assumed	,000	1,000	,042	125	,483	,966	,015	,346	-,671	,700
	Equal variances not assumed			,042	124,983	,483	,966	,015	,346	-,671	,700
Winners (top 5%) 2008-2020	Equal variances assumed	9,428	,003	-1,485	125	,070	,140	-,064	,043	-,149	,021
	Equal variances not assumed			-1,480	100,466	,071	,142	-,064	,043	-,150	,022
Winners (top 10%) 2008-2020	Equal variances assumed	24,291	<,001	-2,306	125	,011	,023	-,144	,062	-,268	-,020
	Equal variances not assumed			-2,298	105,772	,012	,024	-,144	,063	-,268	-,020
Cumulative score top 5% 2008/2011-2020	Equal variances assumed	6,779	,010	-1,424	125	,078	,157	-,324	,228	-,775	,126
	Equal variances not assumed			-1,420	108,985	,079	,158	-,324	,228	-,777	,128
Cumulative score top 10% 2008/2011-2020	Equal variances assumed	6,528	,012	-1,457	125	,074	,148	-,522	,358	-1,230	,187
	Equal variances not assumed			-1,453	113,674	,074	,149	-,522	,359	-1,232	,189

Scales

IO = (a505+a506_inverse+a507+a508+a509+a510+a511)/7

EO = (a604+a605+a606+a607+a608+a609+a610+a611+a612+a613+a614+a615+a616)/13

With related overall construct: iEO = (IO + EO)/2

Reliability test: Cronbach's alpha of IO-questions

The following reliability statistics shows the scale reliability of the IO-scale. As seen from the Item-Total table, the inverted 506-question displays a negative Item-Total correlation. Furthermore, the Cronbach's alpha is significantly improved by excluding this question from the scale. This was confirmed by a factor analysis that suggested only one component in which the inverted 506-question was the only excluded variable. The factor analysis shows that this move reduces the variance to 64% of the variance with the item included.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,855	,855	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
505)	25,85	75,389	,749	,648	,814
Inverted 506	27,30	111,564	-,154	,047	,931
507)	26,43	74,798	,789	,694	,808
508)	26,11	81,538	,714	,573	,822
509)	26,50	75,365	,835	,760	,802
510)	26,54	79,124	,792	,739	,812
511)	26,77	76,646	,772	,647	,812

Factor Analysis: IO-questions

Component Matrix[a]

	Component 1
505)	,845
Inverted 506	
507)	,876
508)	,820
509)	,896
510)	,880
511)	,856

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,503	64,323	64,323	4,503	64,323	64,323
2	,978	13,973	78,295			
3	,463	6,613	84,908			
4	,407	5,811	90,719			
5	,265	3,791	94,511			
6	,224	3,195	97,706			
7	,161	2,294	100,000			

Extraction Method: Principal Component Analysis.

Reliability test: Cronbach's alpha of EO-questions

The EO-questions show a Cronbach's alpha of 0.836, well above the recommended 0.70. This shows that the coherence between the EO-questions is satisfactory. Furthermore, the Cronbach's alpha is not particularly affected by removing any one of the questions from the scale.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,833	,836	13

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
604) Main Prod. (5 yrs): Radical Improvement	55,86	145,694	,271	,233	,838
605)	54,88	139,738	,523	,533	,818
606)	55,52	139,648	,498	,566	,820
607)	55,66	138,801	,519	,552	,818
608)	55,61	141,992	,521	,482	,819
609)	54,59	144,380	,383	,408	,828
610)	55,18	138,366	,483	,528	,821
611)	55,31	141,600	,400	,657	,827
612)	55,76	136,279	,525	,658	,818
613)	55,37	136,989	,523	,741	,818
614)	55,98	134,212	,565	,636	,814
615)	55,33	137,087	,596	,567	,813
616)	55,99	139,911	,451	,496	,823

Independent samples T-Test

- The Winners (Top 10 % of 2014-2020)

No significant differences were found for the mean values of the IO, EO, and iEO of the Winners (denoted 1) compared to the remaining firms (0). The mean values are also relatively similar.

Group Statistics

	The Winners (top 10% 2014-2020)	N	Mean	Std. Deviation	Std. Error Mean
IO	1	19	4,5714	1,32480	,30393
	0	149	4,3969	1,51476	,12409
EO	1	16	4,7548	1,12817	,28204
	0	131	4,6060	,96148	,08400
iEO	1	16	4,5470	,94470	,23617
	0	128	4,5113	1,03226	,09124

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance		Mean	Std. Error	95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Difference	Difference	Lower	Upper
IO	Equal variances assumed	,954	,330	,479	166	,316	,633	,17450	,36427	-,54470	,89369
	Equal variances not assumed			,532	24,419	,300	,600	,17450	,32829	-,50244	,85144
EO	Equal variances assumed	,338	,562	,573	145	,284	,567	,14882	,25954	-,36415	,66179
	Equal variances not assumed			,506	17,763	,310	,619	,14882	,29429	-,47004	,76768
iEO	Equal variances assumed	,291	,591	,132	142	,448	,895	,03571	,27136	-,50071	,57214
	Equal variances not assumed			,141	19,759	,445	,889	,03571	,25319	-,49283	,56426

- Top 5 % of 2014-2020 (The top half of the Winners)

For the top 5 %, the difference between the very top performers and the remaining firms was found significant in the Entrepreneurial Orientation. The results also point in the direction of a higher iEO for the very best.

Group Statistics

Top 5% of the Winners (2014-2020)		N	Mean	Std. Deviation	Std. Error Mean
IO	Top 5%	9	4,8254	1,54982	,51661
	Remaining firms	159	4,3935	1,49023	,11818
EO	Top 5%	8	5,2596	,80145	,28336
	Remaining firms	139	4,5855	,97673	,08284
iEO	Top 5%	8	4,9155	,89853	,31768
	Remaining firms	136	4,4918	1,02459	,08786

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance		Mean	Std. Error	95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Difference	Difference	Lower	Upper
IO	Equal variances assumed	,001	,971	,844	166	,200	,400	,43187	,51161	-,57824	1,44197
	Equal variances not assumed			,815	8,858	,218	,436	,43187	,52995	-,76990	1,63363
EO	Equal variances assumed	,547	,461	1,913	145	,029	,058	,67411	,35231	-,02221	1,37044
	Equal variances not assumed			2,283	8,245	,025	,051	,67411	,29522	-,00316	1,35139
iEO	Equal variances assumed	,186	,667	1,143	142	,127	,255	,42376	,37062	-,30889	1,15641
	Equal variances not assumed			1,286	8,109	,117	,234	,42376	,32961	-,33453	1,18206

H2b – Growth ambition

Scales

Growth Ambitions Scale = (a417+a418+a501+a502+a503+a504+a515)/7

With the sub-measures:

General Growth Ambitions = (a417+a501+ a515)/3

International Growth Ambitions = (a418+a502+a504)/3

Factor analysis: Total variance explained

The table bellow shows that the two suggested components account for about 75% of the variance in the selection variable. Component 1 represents the questions related to international growth ambitions, which account for 60% of the variance. Component 2, which consists of the general growth ambition-questions, contribute 15%.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,229	60,416	60,416	4,229	60,416	60,416	2,870	40,998	40,998
2	1,069	15,265	75,680	1,069	15,265	75,680	2,428	34,682	75,680
3	,733	10,465	86,145						
4	,579	8,266	94,411						
5	,211	3,021	97,432						
6	,104	1,486	98,918						
7	,076	1,082	100,000						

Extraction Method: Principal Component Analysis.

Correlation analysis

Significant correlations with the growth ambition measures were found only for the variable denoting Degree of Born Globalness (DBG) and international entrepreneurial orientation score. There was a weak correlation with the overall Growth Ambition scale. While there was no correlation with the General Growth Ambition sub-measure, a medium correlation was identified with International Growth Ambition. As for iEO, significant correlations were found with all growth ambition-scales. These were of medium to high correlations, signaling a high degree of co-movement between the variables for the firms in the sample.

Correlations

		Growth Ambitions Scale	General Growth Ambitions	International Growth Ambitions
Top 10% 2008-2014	Pearson Correlation	,083	,080	,106
	Sig. (2-tailed)	,280	,294	,162
	N	173	175	176
The Winners (top 10% 2014-2020)	Pearson Correlation	,111	,063	,084
	Sig. (2-tailed)	,145	,409	,267
	N	173	175	176
Top 10% 2008-2020	Pearson Correlation	-,009	,011	-,029
	Sig. (2-tailed)	,908	,889	,707
	N	173	175	176
DBG clusters: Domestic, EEs and TBGs	Pearson Correlation	**,196**[*]	-,028	**,375**[**]
	Sig. (2-tailed)	,030	,754	<,001
	N	123	124	123
iEO	Pearson Correlation	**,599**[**]	**,443**[**]	**,651**[**]
	Sig. (2-tailed)	<,001	<,001	<,001
	N	143	143	144

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

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

One-way ANOVA: Post-hoc test for the growth ambitions of the DBG-clusters

The ANOVA identified a significant difference in the mean values of cluster 1 and 3 in their international growth ambitions. The descriptives table shows the mean values of the clusters. The post-hoc test shows that the difference between the domestic firms in cluster 1 (mean of 4.0 in international growth ambition) and the BGs in cluster 3 (mean of 5.6) is significant. This is the only significant mean difference found in the one-way ANOVA. However, difference (0.87 on a 7-point scale) in the international growth ambitions between clusters 1 and 2 were close to the significance level with sigma 0.088, thereby indicating a relationship between the international growth ambitions and the realized degree internationalization.

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Minimum	Maximum
Growth Ambitions Scale	1	64	4,7746	1,34490	,16811	4,4386	5,1105	1,57	7,00
	2	25	5,2343	1,27634	,25527	4,7074	5,7611	2,14	7,00
	3	34	5,3739	1,41509	,24269	4,8802	5,8677	1,14	7,00
	Total	123	5,0337	1,36817	,12336	4,7895	5,2779	1,14	7,00
General Growth Ambitions	1	64	5,51	1,309	,164	5,18	5,84	2	7
	2	26	5,56	1,505	,295	4,96	6,17	2	7
	3	34	5,40	1,554	,267	4,86	5,94	1	7
	Total	124	5,49	1,411	,127	5,24	5,74	1	7
International Growth Ambitions	1	64	4,04	1,820	,228	3,59	4,50	1	7
	2	25	4,91	1,464	,293	4,30	5,51	2	7
	3	34	5,58	1,471	,252	5,07	6,09	1	7
	Total	123	4,64	1,779	,160	4,32	4,96	1	7

Multiple Comparisons

Bonferroni

Dependent Variable	(I) DBG-clusters: Domestic, EEs, and TBGs	(J) DBG-clusters: Domestic, EEs, and TBGs	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Growth Ambitions Scale	1	2	-,45973	,31871	,455	-1,2336	,3141
		3	-,59940	,28678	,116	-1,2957	,0969
	2	1	,45973	,31871	,455	-,3141	1,2336
		3	-,13966	,35602	1,000	-1,0041	,7248
	3	1	,59940	,28678	,116	-,0969	1,2957
		2	,13966	,35602	1,000	-,7248	1,0041
General Growth Ambitions	1	2	-,054	,330	1,000	-,86	,75
		3	,108	,302	1,000	-,62	,84
	2	1	,054	,330	1,000	-,75	,86
		3	,162	,370	1,000	-,74	1,06
	3	1	-,108	,302	1,000	-,84	,62
		2	-,162	,370	1,000	-1,06	,74
International Growth Ambitions	1	2	-,865	,392	,088	-1,82	,09
		3	-1,537*	,353	<,001	-2,39	-,68
	2	1	,865	,392	,088	-,09	1,82
		3	-,672	,438	,383	-1,74	,39
	3	1	1,537*	,353	<,001	,68	2,39
		2	,672	,438	,383	-,39	1,74

*. The mean difference is significant at the 0.05 level.

Correlations: Orientations (IO, EO, iEO) vs Growth Ambitions (Overall, General, International)

Correlation matrix illustrating the relationship between the international and entrepreneurial orientations of a firm and its growth ambitions. All correlations are significant at the 0.01-level and of medium to high strength, indicating a close relationship between the constructs. Overall, the degree of co-movement is stronger for IO and iEO than EO for all three growth ambition scales. Furthermore, the correlations with all orientations are stronger for the overall growth ambitions scale and the sub-measure of international ambitions than for the sub-measure of general growth ambitions.

Correlations

		IO	EO	iEO
Growth Ambitions Scale	Pearson Correlation	,595**	,316**	,599**
	Sig. (2-tailed)	<,001	<,001	<,001
	N	167	145	143
General Growth Ambitions	Pearson Correlation	,366**	,319**	,443**
	Sig. (2-tailed)	<,001	<,001	<,001
	N	167	146	143
International Growth Ambitions	Pearson Correlation	,707**	,301**	,651**
	Sig. (2-tailed)	<,001	<,001	<,001
	N	168	147	144

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

H2c – Sources of inspiration and learning activities

Scales

The first scale was for sources of inspiration for the firm's development activities:

Sources of Inspiration scale = (a709 + a710 + a711 + a712 + a713 + a714 + a715 + a716 + a717 + a718 + a719 + a720 + a801 + a802) / 14

With two sub-measures distinguishing between sources of inspiration from actors in the value chain and competitors, denoted feedback inspiration, and sources requiring more active search:

Feedback inspiration = (a709 + a710 + a711 + a712 + a713 + a714) / 6

Searching inspiration = (a715 + a716 + a717 + a718 + a719 + a720 + a801 + a802) / 8

The fourth scale used questions on the type of learning activities used to internalize the knowledge acquired through international activities:

Learning Activities scale = (a803 + a804 + a805 + a806 + a807 + a808 + a809) / 7

The Learning Activities scale had significant correlations of medium to high strength with the Sources of Inspirations scale and both its sub-scales.

Correlations

		Sources of Inspiration scale	Network sources	Active Search sources
Learning Activities scale	Pearson Correlation	,524	,394	,508
	Sig. (2-tailed)	<,001	<,001	<,001
	N	146	148	154

T-Test of most important factors:

Group Statistics

	The Winners (top 10% 2014-2020)	N	Mean	Std. Deviation	Std. Error Mean
711) Source of Insp.: Associated Companies	Winners	19	4,26	1,968	,451
	Others	141	2,89	2,066	,174
804) Sharing of information in meetings	Winners	20	5,00	1,298	,290
	Others	143	4,27	1,921	,161
805) Face-to-face discussions between different teams	Winners	20	4,25	1,482	,331
	Others	143	4,38	1,917	,160

Independent Samples Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | | |
| | | | | | | Significance | | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
		F	Sig.	t	df	One-Sided p	Two-Sided p			Lower	Upper
711) Source of Insp.: Associated Companies	Equal variances assumed	1,281	,260	2,727	158	,004	,007	1,370	,502	,378	2,361
	Equal variances not assumed			2,831	23,677	,005	,009	1,370	,484	,370	2,369
804) Sharing of information in meetings	Equal variances assumed	8,395	,004	1,655	161	,050	,100	,734	,444	-,142	1,610
	Equal variances not assumed			2,214	32,024	,017	,034	,734	,332	,059	1,410
805) Face-to-face discussions between different teams	Equal variances assumed	2,279	,133	-,286	161	,388	,775	-,128	,447	-1,010	,754
	Equal variances not assumed			-,347	28,713	,366	,731	-,128	,368	-,881	,626

Concluding analysis

Stepwise Linear Regression Analysis: Round 1

When entering all the created constructs into a Stepwise Linear Regression Analysis, the Network Feedback Sources-metric was the only entered variable used in the final model. According to the adjusted R square of the model, this explains about 4.9% of the Winners' performance.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Network Sources	.	Stepwise (Criteria: Probability-of-F-to-enter <= ,050, Probability-of-F-to-remove >= ,100).

a. Dependent Variable: The Winners (top 10% 2014-2020)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,243[a]	,059	,049	,329

a. Predictors: (Constant), Network Feedback Sources

Coefficients[a]

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
		B	Std. Error	Beta		
1	(Constant)	-,258	,166		-1,560	,122
	Network Feedback Sources	,088	,037	,243	2,390	,019

a. Dependent Variable: The Winners (top 10% 2014-2020)

Stepwise Linear Regression Analysis: Round 2

After removing the Network Feedback Sources-scale from the model, a next variable entered into the Linear Regression model was the Degree of Born Globalness-clusters. This explains 2.9% of which firms belong to the Winners. After removing this variable as well from the linear analysis, no further variables were entered into the model.

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	DBG-clusters: Domestic, EEs, and TBGs	.	Stepwise (Criteria: Probability-of-F-to-enter <= ,050, Probability-of-F-to-remove >= ,100).

a. Dependent Variable: The Winners (top 10% 2014-2020)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,199[a]	,039	,029	,336

a. Predictors: (Constant), BGness clusters: Domestic, Euro exporters and BGs

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	,269	,077		3,510	<,001
	DBG-clusters: Domestic, EEs, and TBGs	-,078	,039	-,199	-1,986	,050

a. Dependent Variable: The Winners (top 10% 2014-2020)

T-Test: All constructs

The T-Test shows that the scale representing more active search for inspiration is close to being significant (p-value of 0.064 with the threshold being 0.050). The mean difference between the Winners and the rest in this metric is 0.5 on the 7-point scale, which is not an inconsiderable difference. Furthermore, the international growth ambitions of the Winners are equally close to being significant and on average 0.5 points higher for the Winners than the rest.

Group Statistics

	The Winners (top 10% 2014-2020)	N	Mean	Std. Deviation	Std. Error Mean
DBG clusters: Domestic, EEs, and TBGs	Winners	17	1,47	,624	,151
	Others	107	1,80	,884	,085
Growth Ambitions Scale	Winners	20	5,3286	,79890	,17864
	Others	153	4,8319	1,48833	,12032
General Growth Ambitions	Winners	21	5,62	1,248	,272
	Others	154	5,35	1,438	,116
International Growth Ambitions	Winners	20	4,85	1,263	,283
	Others	156	4,34	1,980	,159
IO	Winners	19	4,5714	1,32480	,30393
	Others	149	4,3969	1,51476	,12409
EO	Winners	16	4,7548	1,12817	,28204
	Others	131	4,6060	,96148	,08400
iEO	Winners	16	4,5470	,94470	,23617
	Others	128	4,5113	1,03226	,09124
Network sources	Winners	18	4,82	,897	,212
	Others	138	4,27	,953	,081
Active Search sources	Winners	19	3,51	1,199	,275
	Others	144	3,05	1,075	,090
Learning Activities scale	Winners	18	3,60	1,173	,277
	Others	138	3,27	1,311	,112

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
						Significance		Mean Difference	Std. Error Difference		
		F	Sig.	t	df	One-Sided p	Two-Sided p			Lower	Upper
DBG clusters: Domestic, EEs, and TBGs	Equal variances assumed	8,809	,004	-1,493	122	,069	,138	-,333	,223	-,775	,109
	Equal variances not assumed			-1,916	27,406	,033	,066	-,333	,174	-,690	,023
Growth Ambitions Scale	Equal variances assumed	10,550	,001	1,462	171	,073	,145	,49664	,33960	-,17371	1,16699
	Equal variances not assumed			2,306	39,144	,013	,027	,49664	,21538	,06104	,93224
General Growth Ambitions	Equal variances assumed	1,796	,182	,827	173	,205	,409	,273	,330	-,378	,924
	Equal variances not assumed			,921	27,773	,182	,365	,273	,296	-,334	,879
International Growth Ambitions	Equal variances assumed	8,144	,005	1,113	174	,134	,267	,506	,455	-,392	1,404
	Equal variances not assumed			1,562	32,455	,064	,128	,506	,324	-,154	1,165
IO	Equal variances assumed	,954	,330	,479	166	,316	,633	,17450	,36427	-,54470	,89369
	Equal variances not assumed			,532	24,419	,300	,600	,17450	,32829	-,50244	,85144
EO	Equal variances assumed	,338	,562	,573	145	,284	,567	,14882	,25954	-,36415	,66179
	Equal variances not assumed			,506	17,763	,310	,619	,14882	,29429	-,47004	,76768
iEO	Equal variances assumed	,291	,591	,132	142	,448	,895	,03571	,27136	-,50071	,57214
	Equal variances not assumed			,141	19,759	,445	,889	,03571	,25319	-,49283	,56426
Network sources	Equal variances assumed	,006	,936	2,316	154	,011	,022	,550	,237	,081	1,019
	Equal variances not assumed			2,427	22,314	,012	,024	,550	,227	,080	1,019
Active Search sources	Equal variances assumed	,136	,713	1,723	161	,043	,087	,458	,266	-,067	,983
	Equal variances not assumed			1,583	21,984	,064	,128	,458	,289	-,142	1,058
Learning Activities scale	Equal variances assumed	1,333	,250	,997	154	,160	,320	,324	,325	-,318	,966
	Equal variances not assumed			1,087	22,915	,144	,289	,324	,298	-,293	,941

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